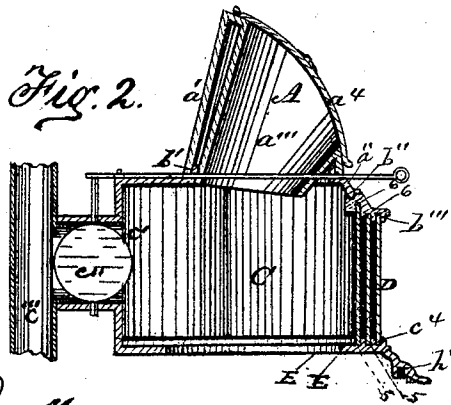
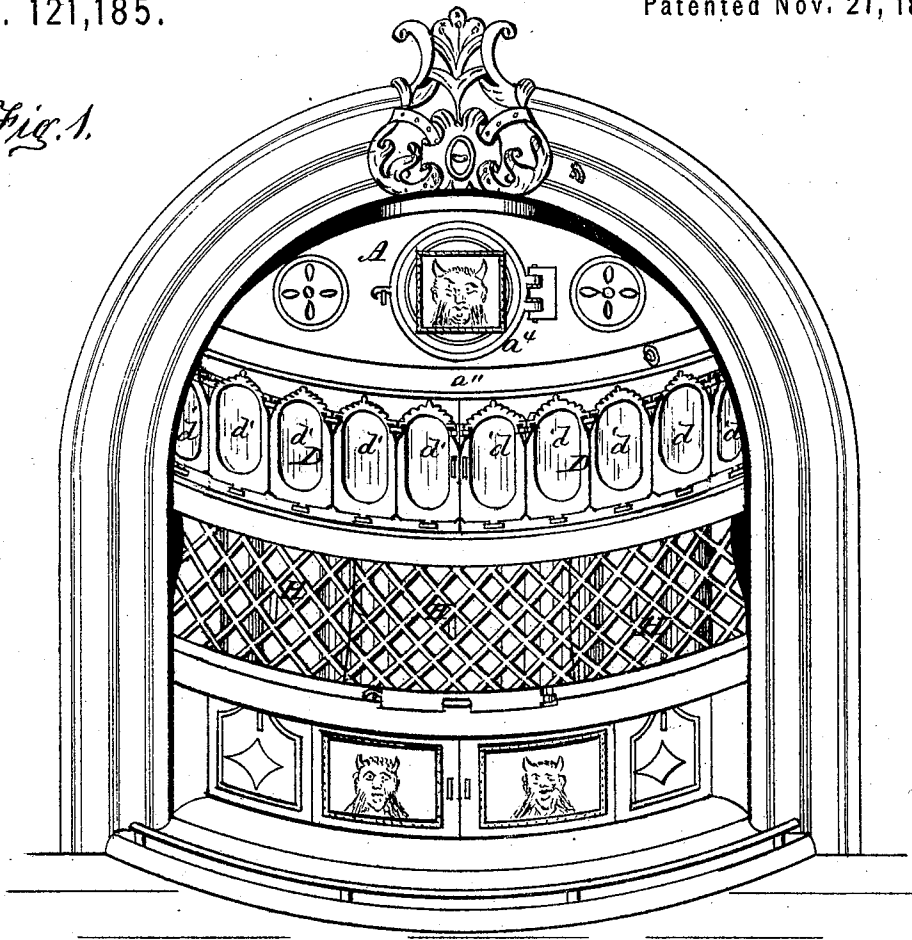


Improvement in Base Burning Fire Place Heaters.

No. 121,185.

Patented Nov. 21, 1871.

Fig. 1.



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Improvement in Base Burning Fire Place Heaters.

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Fig. 3.

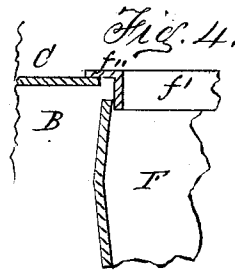
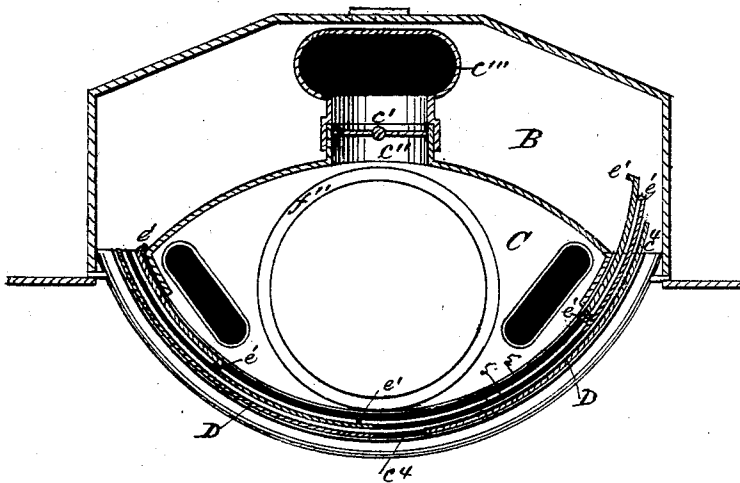


Fig. 6.

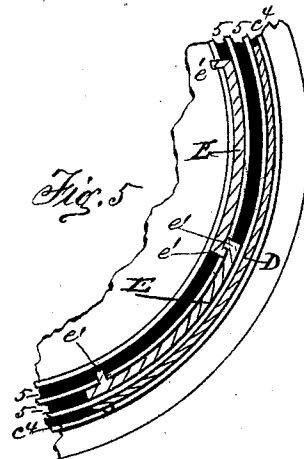
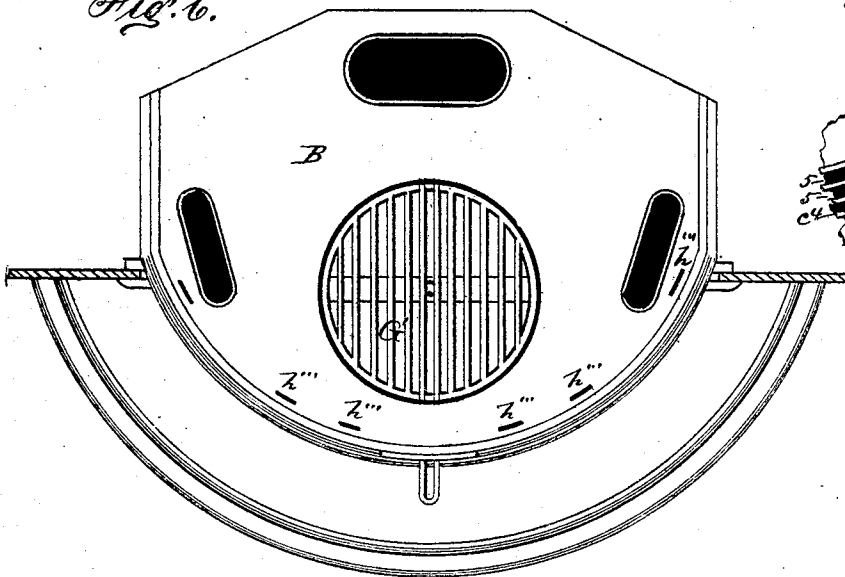
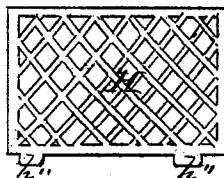


Fig. 7.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN BASE-BURNING FIRE-PLACE HEATERS.

Specification forming part of Letters Patent No. 121,185, dated November 21, 1871.

To all whom it may concern:

Be it known that I, WILLIAM L. McDOWELL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Place Stoves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon making part of this specification.

The first part of my invention relates to a movable top or crown, so constructed and applied upon the body of the stove that it can be readily lifted off and on by hand at any time; the object of this part of my invention being to afford free and open access to the interior of the upper part of the fire-chamber for the twofold purpose of facilitating in attaching and detaching the smoke-flue pipe and damper, and in cleaning out the usual ashes, dust, &c., as occasion may from time to time require. The second part of my invention relates to the construction and arrangement of two connecting pairs of imperforate metallic sliding shield-plates in two upper and two lower grooves, immediately behind and concentric with the respective curved grooves for the sliding illuminating window-plates, in such a manner that the said two pairs of shield-plates can be slid backward and forward in the grooves with facility; the object of this part of my invention being to enable the operator to draw forward with facility the said shield-plates, so as to cover the whole of the inner sides of the illuminating plates and protect the latter from smoke when necessary, and to slide the said shield-plates entirely back out of sight and out of reach of the fire, and thus permit a free transmission of the light of the incandescent fuel in the fire-box or cylinder through the whole series of the windows, which extend from one side to the other of the exposed curved front of the stove. The third part of my invention relates to the construction and application of the perforated or skeleton screen-plates, which form the front wall of the hot-air chamber of a fire-place stove, in such a manner that either one or all of the plates can, at any time, be lifted and withdrawn or replaced by hand with facility; the object of this

part of my invention being to afford easy and instant access to the interior of said chamber for the removal of dust, &c. The fourth part of my invention relates to a mode of maintaining a close joint between the upper end of the fuel-cylinder or fire-box and the top plate of the surrounding hot-air chamber or space in which the cylinder or fire-box is located, by enlarging the usual opening in the plate, shortening the cylinder, and covering the surrounding space left between by a short flanged cylinder which, while resting upon the plate, projects downward about two inches, more or less, around, in sliding contact with the inner side of the said fuel-cylinder or fire-box; the object of this part of my invention being twofold—first, to allow a free expansion and contraction in the length of the fire-box or cylinder, consequent upon its changing temperature; and, second, to facilitate in the withdrawal and renewal of the same, as occasion may require.

Figure 1 is a front elevation of a fire-place stove embodying my invention. Fig. 2 is a central transverse section of the top or crown, and of the illuminating fire-chamber and sliding plates below the crown, and also of the escape-flue and valve. Fig. 3 is a horizontal section of the illuminating fire-chamber and of the hot-air space and flue behind it, the plane of the section cutting the fire-flue and its damper-valve longitudinally through the center of the flue. Fig. 4 is a fractured, central, vertical section of the fuel-cylinder, the bottom plate of the fire-chamber, and the loose flanged short cylinder which connects the fuel-cylinder and the bottom plate of the fire-chamber together. Fig. 5 is a fractured section of Fig. 3, enlarged to show more plainly the mode of connecting a pair of the shield-plates behind the illuminating window-plate. Fig. 6 is a plan view of the bottom plate of the hot-air chamber and of the grate, together with a plan view of the usually-removable hearth-plate and fender in front of the usual ash-chamber below the hot-air chamber. Fig. 7 is a front elevation of one of the skeleton or perforated screen-plates detached.

The crown A is segmental in the contour of its back and open under sides, the back *a'* being closed and the under side entirely open; and the

lower edge of the straight back a' is made to slip accurately over an upright flange, b' , of the top plate of the fire-chamber C, while the curved front edge a'' at the bottom of said crown is made to slip accurately against the one side of an upright flange, b'' , on the curved front edge of the said plate. The space between the two flanges b' b'' of said plate being open there is, therefore, a free communication afforded between the said crown A and the fire-chamber C below, when the crown is applied as shown in Figs. 1 and 2; and also open access afforded for adjusting, removing, cleaning, and replacing the direct draught-flue c' , damper-valve c'' , and the indirect draught-flue c''' , (see Figs. 2 and 3,) when the crown A is lifted off. For the convenience of readily supplying fuel to the fire-cylinder below, a chute, a''' , provided with a hinged cover, a^4 , is secured permanently in the crown, and through this chute the fuel may be readily run down into the cylinder. The curved front of the fire-chamber C is provided with two sliding illuminating window-plates, D D, which, when abutted together at the mid-width of the front of said chamber, produce a continuous series of illuminating or mica windows, d' d' , extending from one side to the other of the said fire-chamber. (See Fig. 1.) The upper edges of these two plates D D slide in a groove, b''' , made in the under side of the curved front edge of the top plate of the chamber C, and their lower edges in a like groove, c^4 , in the correspondingly-curved front edge of the bottom plate of said chamber C, (see Figs. 1, 2, 3, 5;) and consequently the said window-plates can be readily abutted together, as in Fig. 1, to close the whole front of the fire-chamber C, or slid apart sufficiently to open nearly the whole front of the said fire-chamber, as occasion may at any time require an open fire, or the introduction of fuel through the opening. Immediately behind the illuminating plates D D the two pairs of shield-plates E E are arranged to slide in two continuous grooves, 5 5 and 6 6, made concentric with the respective continuous groove c^4 and b''' in the respective bottom and top plates of the fire-chamber C. Both ends of the plates E of each pair have flanges e' , which correspond in width with the thickness of the partition between their respective grooves, and the plates are so arranged in their respective grooves that the flanges of each plate of a pair will eventually come in contact alternately with each other as the plates are pushed or pulled along in their respective grooves, when they are being slid along either forward or backward, or right and left, the whole length of their range, in shielding the illuminating window-plates from the dust or smoke of the fuel, or in exposing the windows for the transmission of the light of the incandescent fuel. In pushing the nearer plate backward its full length its nearer flange comes in contact with the nearer flange of the inner plate, and thus both pairs E E can be pushed back sufficiently far into the hot-air chamber B to be out of reach of the fire and to uncover the whole series of the illuminat-

ing windows d' d' ; and in drawing them forward again the inner flange of the nearer plate catches against the nearer flange of the further plate and draws it forward, so that the two pairs of plates E E, when abutted together in front, will shield the whole series of the windows d' d' , as before stated. The fire-cylinder F, (see Fig. 4,) rests upon the bottom plate of the hot-air chamber B and directly over the grate G in the usual manner; but it is made about two inches, more or less, shorter than the space which is between the said bottom plate and the bottom plate of the fire-chamber C, and the opening in the latter plate for the introduction through it of the cylinder F, which is generally either swelled out between its two ends or made larger in diameter at its bottom than at its top, is made large enough to allow the cylinder to be freely passed through it. The annular space left between the said plate and the upper end of the said fuel-cylinder is then closed by a short hollow cylinder, f' , which has a flange, f'' , whereby it rests loosely upon the upper side of the said top plate of the hot-air chamber B, while its lower or cylindrical part fits in sliding contact with the inner side of the upper end of the fuel-cylinder or fire-box in such a manner that the alternate lengthening and shortening of the said fuel-cylinder, consequent upon changes in its temperature, will be permitted without its causing any elevation or displacement of the said flanged cylinder f' . The perforated or skeleton screen-plates H H H, forming the wall of the hot-air chamber B, are separate or distinct, and can be lifted out and replaced, as occasion may require, for cleaning out dust, &c., from the hot-air chamber. The upper edge of each plate H is held securely in a deep groove, h' , in the under side of the curved front edge of the top plate of the hot-air chamber B. The lower edge of each plate H is cast with two short tenons, h'' h'' , (see Fig. 7,) which enter loosely into respective mortises h''' h''' (see Fig. 6) in that part of the front of the bottom plate of the hot-air chamber B which is directly below the groove h' of the plate above, so that by inserting the upper edge of any one of the said screen-plates H up into the groove h' the tenons h'' h'' can be readily dropped into the corresponding mortises h''' h''' , and thus the plates be securely held in the proper position shown in Fig. 1.

I claim as my invention—

1. A movable top or crown, A, constructed and applied to a fire-place stove, substantially as and for the purposes hereinbefore set forth.

2. The two pairs of shield-plates E E, constructed as described, in combination with the two respective upper and lower continuous grooves 5 5 and 6 6, and arranged to operate therein in relation to the illuminating plates D D, as and for the purposes hereinbefore set forth and described.

3. The movable, perforated, or skeleton screen-plates H H H, having tenons h'' h'' projecting from their respective lower edges to correspond with the respective mortises h''' h''' in the front

part of the bottom plate of the hot-air chamber B, and their respective upper edges constructed to slip up into the groove *h'* of the under side of the top plate of the hot-air chamber B when being applied thereto, all substantially as and for the purposes hereinbefore set forth.

4. The loose-flanged short hollow cylinder *f'*, when constructed and applied to operate in relation to the fuel-cylinder or fire-box of a stove

and the top plate of the hot-air chamber or space around the said fuel-cylinder or fire-box, substantially as and for the purposes hereinbefore set forth and described.

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Witnesses:

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(154)