WILLIAM L. McDOWELL.

Improvement in Fire-Boxes for Heating-Stoves.

No. 114,837. Patented May 16, 1871.

Fig. 1.

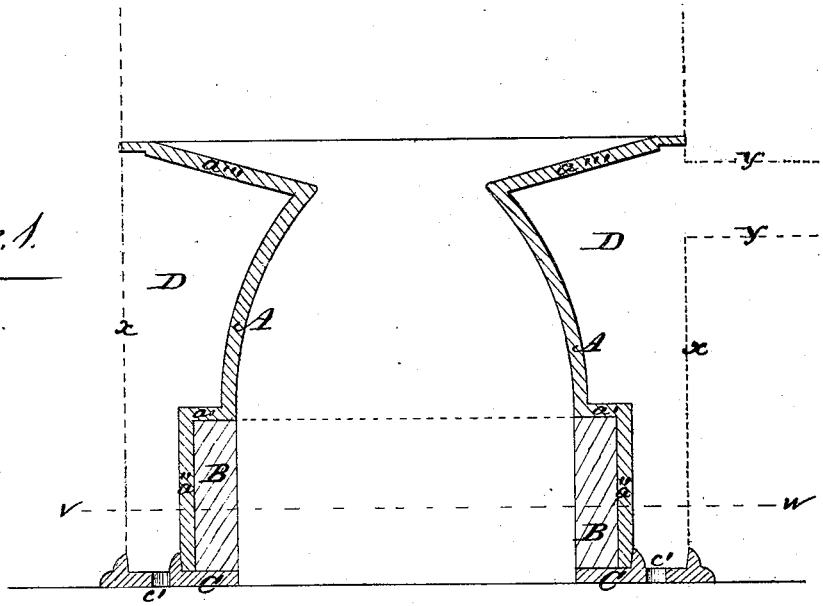
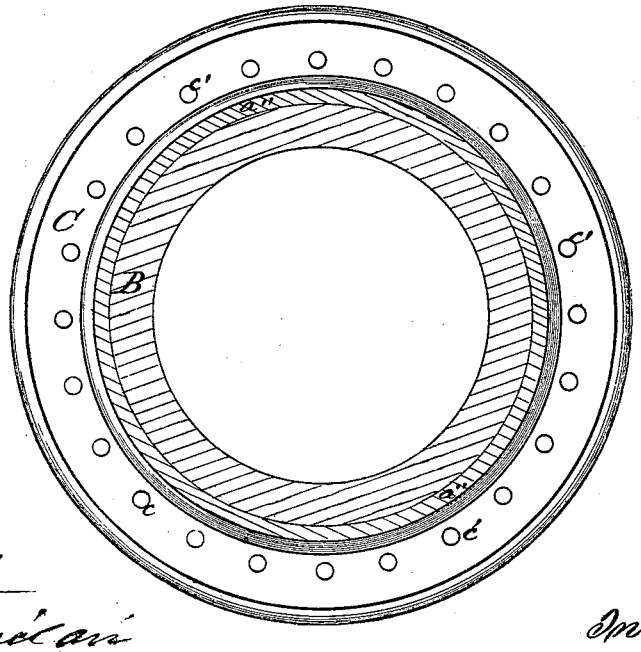


Fig. 2.



Witnesses:

Jas. B. Sinclair

Mary R. Sinclair

Inventor:

Wm. L. McDowell

United States Patent Office.

WILLIAM L. McDOWELL, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 114,837, dated May 16, 1871.

IMPROVEMENT IN FIRE-BOXES FOR HEATING-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM L. McDOWELL, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in the Fire-Boxes or Cylinders of Heaters, Ranges, and Stoves, of which the following is a specification.

Nature and Objects of the Invention.

My invention relates to the construction of the lower portion of the iron fire-box or cylinder for a heater, range, or stove in such a manner as to afford a suitable recess extending entirely around in the inner side of the lower end of the same, and then filling the said recess with fire-brick lining, or its equivalent porous lining material, flush or even with the inside surface of that portion of the iron fire-box or cylinder which is immediately above the said lining, the object of my invention being to provide against the cooling influence of the fresh air, which is constantly passing in contact with the exterior surface of the iron fire-box or cylinder, by the intervention of a poor conductor of heat between the said iron and the incandescent fuel in the lower or grate end of the said fuel-box or cylinder, and thus preventing the fire from "dying out" from the said cooling effect of the surrounding fresh air, and at the same time affording ample heat-radiating iron surface exposed above the recessed portion outside of the said fire-box or cylinder to warm the said surrounding air.

Description of the Accompanying Drawing.

Figure 1 is a central vertical section of a circular iron fuel-holder or fire-cylinder embodying my invention, the same being supported upon the usual perforated plate.

Figure 2 is a horizontal section below the dotted ine *v w* of fig. 1.

General Description.

The recess in the iron fuel-holder A, for the reception of the fire-brick or other fire-proof porous lining B, is formed, in this instance, by casting the holder A with a horizontally-projecting offset, *a'*, around the same, of such width as the thickness of the fire-brick lining B, intended to be applied in the recess, may require; and from the outer edge of said projection the iron vessel extends downward and forms the bottom edge and boundary wall *a''* of the open or grate end of the said iron vessel, whereby it rests upon the usual supporting plate C. The recess for the porous lining B forms about one-third (more or less) of the height or length of the fuel-holder A.

The porous lining B may consist of a series of fire-brick sections, or of a single hollow cylinder of fire-brick material, or other fire-proof porous substance adapted in thickness and length to fill the recess, so that the inner periphery of the said lining and that of the iron part of the fuel-holder which is directly above the recess shall be even or in the same circular plane, and rest together upon the supporting plate C, as shown in fig. 1.

The inclined top flange *a'''* of the fuel-holder A extends outward far enough to fit closely around against the outside casing or body of the stove or heater, indicated by the dotted lines *x x*, and thus together form around the body of the fuel-holder A, between the said flange and the plate C, a hot-air space, D, which will continue to be supplied with fresh air through the ring of perforations *c' c'* in the plate, and the heated air discharged through any fanciful perforations or openings in the sides of the outside casing or body in parlor-stoves, or, for heaters, through a suitable conducting-pipe or flue communicating therewith, as indicated by the dotted lines *z z* in fig. 1.

For ranges the fire-box or fuel-holder is generally required to be rectangular, on account of the oven or ovens, in which case the recess for the fire-lining B is formed in the lower portion of the said rectangular fuel-holder, and filled with the porous lining substantially in the same manner as described for the circular holder A, the spaces left between the sides of the oven-plates and the fuel-holder or fire-box forming a chamber for supplying warm air to other rooms in the dwelling.

It will be readily understood, without further description, that, as the lower portion of the incandescent fuel in the fuel-holder is protected from any reduction of its temperature by the cold fresh air which constantly impinges against the outside iron surrounding the lining, the fire will be prevented from commencing to die out at the front, as heretofore, from such cause, and that, at the same time, the larger portion of the iron fuel-holder, which is above the porous lining, will radiate a sufficiency of heat to warm the air passing through the hot-air chamber around the said fuel-holder, whether the latter be rectangular or circular.

I am aware that the whole fire side of the iron back plate of the fire-box of a cooking-stove has been recessed, and the recess fitted with porous refractory material for the twofold purpose of preventing the oven side of the back plate from becoming too highly heated and protecting it from rapid destruction; therefore I do not desire to claim, broadly, the application of refractory material to the fire side of such plates; but what I desire to secure by Letters Patent is confined to the following claim.

I claim as my invention—

For a stove, range, or heater, a cast-iron fire-box, A, having upper part inwardly inclined and its lower end enlarged by a recess, *a' a''*, cast around in its inner side, and the recess then filled with fire-brick or other suitably-porous refractory material, B, substantially as and for the purposes hereinbefore set forth.

Witnesses: WM. L. McDOWELL.

MARY R. SINCLAIR,

JAS. B. SINCLAIR.