S. MERRICK.

FIRE-PLACE HEATER.

No. 187,035. Patented Feb. 6, 1877.

Fig. 1.

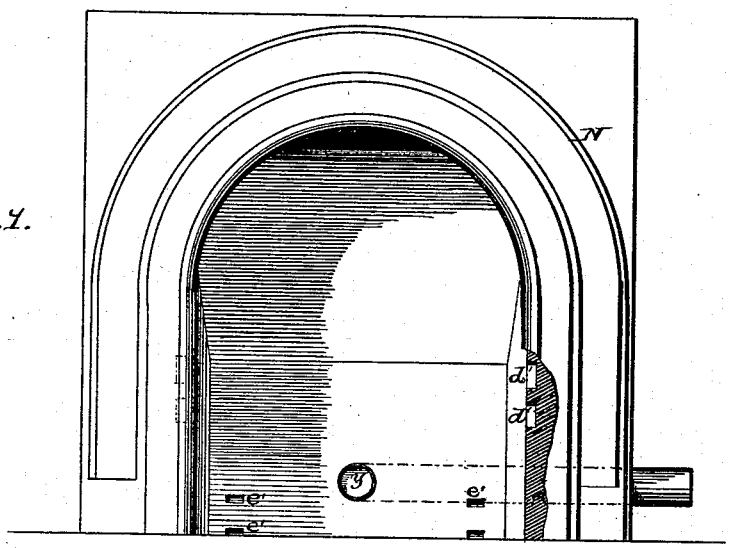


Fig. 5.

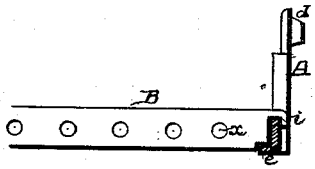


Fig. 2.

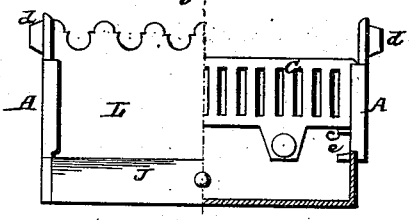


Fig. 3.

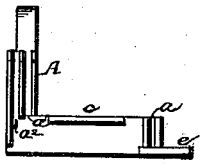


Fig. 4.

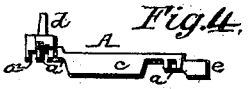


Fig. 7.

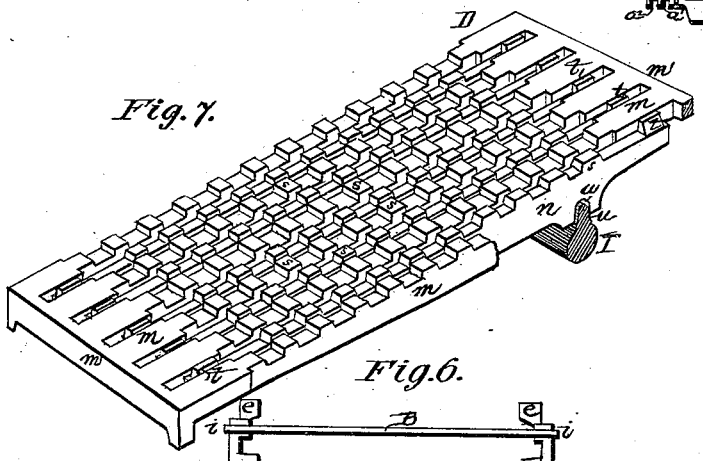
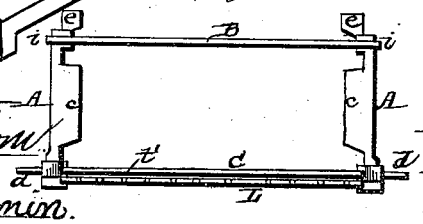


Fig. 6.



Attest:
George Thom
Fred Benjamin.

S. Merrick
By Chas. Foster
his attorney.

UNITED STATES PATENT OFFICE.

SILAS MERRICK, OF NEW BRIGHTON, PENNSYLVANIA.

IMPROVEMENT IN FIRE-PLACE HEATERS.

Specification forming part of Letters Patent No. **187,035**, dated February 6, 1877; application filed December 21, 1876.

To all whom it may concern:

Be it known that I, SILAS MERRICK, of New Brighton, Beaver county, Pennsylvania, have invented an Improved Fire-Place Heater, of which the following is the specification:

The object of my invention is a fire-place heater constructed, as fully described hereafter, to facilitate its attachment in any desired position within the fire-place, and to afford a plentiful supply of air for combustion independent of any front openings; the further object of my invention being a grate constructed to maintain the fire free from dust, cinders, and clinkers, and to insure a clear fire at the edges as well as at the center.

In the drawing, Figure 1 is a front elevation of the fire-place, the grate being removed. Fig. 2 is an elevation of the heater, showing one-half partly in section. Fig. 3 is a side elevation of one of the end frames. Fig. 4, a plan of Fig. 3; Fig. 5, a detached view, showing the mode of securing the rear cross-bar and side frame; Fig. 6, a plan of Fig. 2; and Fig. 7, a perspective view, enlarged, showing the horizontal grate.

The grate-frame consists of the end frames A A, rear cross-bar B, and the front open or slotted grate C, each frame A being L-shaped and cast with vertical ribs forming grooves *a* a^1 a^2 with a horizontal inner flange, *c*, a lug, *d*, at the outside near the top, and a lip, *e*, at the inner end. This construction permits the securing of the end frames easily and firmly in the fire-place in any required position by forming at the back of the fire-place openings *e'* to admit the lips *e*, and at the sides and back of the frame N openings *d'* to admit the lugs *d*, so that where the frames are placed against the sides, with their lips and lugs in these openings, they will be more securely fastened than by the expensive, immovable, and unreliable devices heretofore employed. After the adjustment of the side frames, the rear cross-piece B is placed with its ends in the grooves *a*, hooks *i* at the ends extending outside the frames and preventing them from spreading apart, away from the cross-piece, which has perforations *x* for a purpose described hereafter. The grate C is passed with its edges in the grooves a^1 between the frames, thus maintaining them closely in contact with the sides of the fire-place, and preventing the possibility of the lugs *d* being withdrawn. The bottom grate D consists of a frame composed of stationary bars *m* and end pieces *m'* uniting said bars, and movable bars *n*, which occupy the spaces between the stationary bars, the grate-frame having a positive and secure support on the horizontal arms of the end frames A, and the movable bars bearing at their ends on the flanges *c*. Upon the upper edge of each bar, stationary and movable, is a series of rectangular lugs, *s*, and at each end of each bar *n* is a narrow lug, *t*, adapted to the opening between the bars *m*, which is contracted at the ends, as shown. A rock-shaft, I, extends below the grate, has its bearings in the cross-piece B and front grate C, and is provided with a longitudinal feather, *u*, which enters a slot, *w*, in the lower edge of each bar *n*, so that when the shaft is rocked by a suitable handle, all the movable bars will be carried to and fro longitudinally.

It will be seen that the bars *n* are shorter than the bars *m*, so as to permit their movement, and leave ample spaces at the ends for the admission of air to the edges of the fire, where it is most apt die out, and where clinkers and dust are liaole to collect. This is not only prevented by the free admission of air, but by keeping the fire clear by the raking-lugs *i*, and by contracting the spaces between the bars at this point, so as to prevent any particles, which cannot easily be crushed by the sliding bars, from being wedged in said spaces, while any particles that pass downward to the flanges *c* are readily displaced by the movements of the bars, leaving an unobstructed air-passage. The rectangular sharp-edged lugs *s s* of the movable bars shear the fuel against the lugs of the stationary bars and break up the cinders, clinkers, burnt slate, and other incombustible material until fine enough to pass downward readily, while both series of lugs serve conjointly to rasp and stir the fire and keep it clear.

The grate and frame thus constructed may be applied to the fire-place either with the grate-bars nearly level with the hearth, forming a low-down grate, the ashes falling to the cellar, or it may be elevated and an ash-pan, J, placed beneath, as shown in Fig. 2, an arrange-

ment suitable for upper stories, and a detachable cover-plate, L, open or closed and suitably ornamented, is inserted in the grooves a^2, so as to prevent dust from falling or being blown out upon the hearth or fender, and to completely cover or conceal the grate C, between which and the grate is a space, t', Fig. 6. In such cases a full supply of air is introduced through a suitable opening, y, at the rear of the fire-place, the perforated cross-piece permitting its passage, or it may be introduced at any point below the grate, and will pass upward through the grate D to the space t', through the grate C, and at the rear behind the cross-piece B, furnishing a most abundant supply, to promote a thorough combustion at all points.

It will be apparent that the grate-bars m may be separate instead of being formed into a continuous frame; that different means may be employed for operating the movable bars; and that the general construction of the parts may be varied without departing from the main features of my invention.

I claim—

1. The grate-frame, provided with side lugs and rear lips, adapted, as described, to openings in the sides and rear of the fire-place, substantially as specified.

2. The combination, in a grate-frame, of side frames A A, cross-piece B adapted to grooves a in the side frames, and an upright grate, C, adapted to grooves a^1, substantially as specified.

3. The combination of a fire-place heater and a detachable cover-plate, L, adapted to grooves a^2 in the side frames, substantially as set forth.

4. The combination of a fire-place heater and a plate, L, arranged parallel to the grate, and forming an air-space, t', substantially as set forth.

5. The combination, in a fire-place heater, of a grate, D, a flue to admit air beneath the grate, an upright grate, C, and a cover-plate, L, forming with the grate C a space, t', for the purpose specified.

6. The combination, in a fire-place grate or heater, of the stationary bars m, intermediate spaces contracted at the ends, and series of separate movable bars n n provided with lugs t, extending upward into said contracted spaces, for the purpose set forth.

7. The combination, in a fire-place grate or heater, of the stationary and the intermediate movable bars, both provided with angular lugs s, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SILAS MERRICK.

Witnesses:
JAMES EDGAR,
BENJ. WILDE.