

W. A. GREENE.
Parlor Heating-Stove.

No. 220,529.

Patented Oct. 14, 1879.

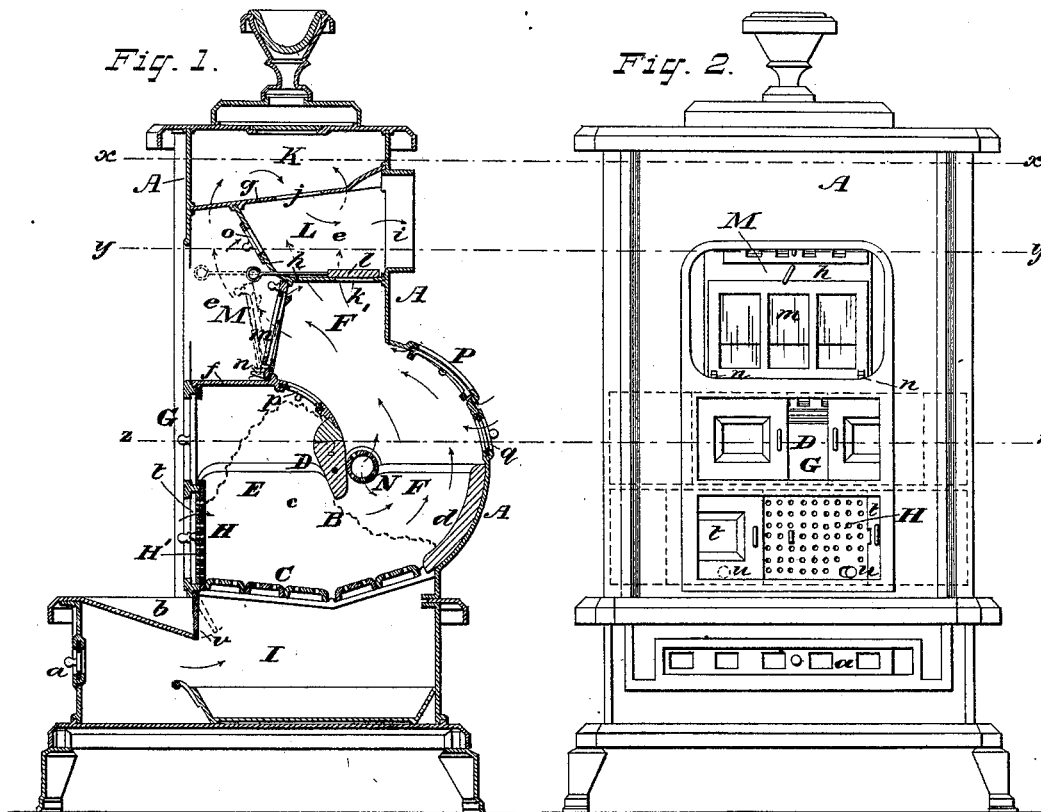
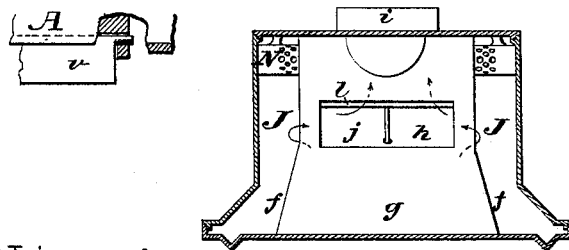


Fig. 3.



ATTEST:

Walter W. Scott
George H. Traber,

INVENTOR:

William A. Greene,
By his Attorneys,
Burke, Fraser & Connetto.

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Fig. 4.

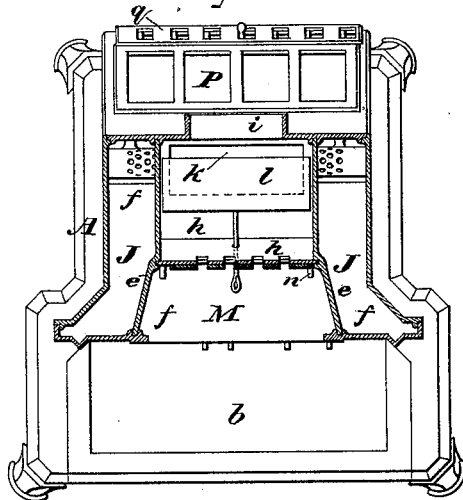


Fig. 5.

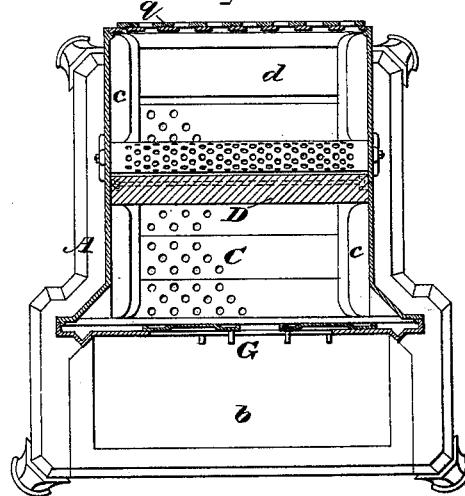


Fig. 7.

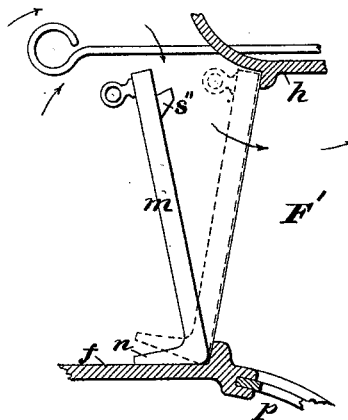
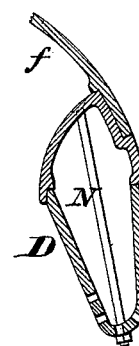


Fig. 6.



ATTEST .

Walter H. Scott
George H. Fraser.

INVENTOR:

William A. Greene,
By his Attorneys,
Burke, Fraser & Connell

UNITED STATES PATENT OFFICE.

WILLIAM A. GREENE, OF ELIZABETHPORT, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO EDWIN R. CAHOONE AND ANDREW ALBRIGHT, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN PARLOR HEATING-STOVES.

Specification forming part of Letters Patent No. 220,529, dated October 14, 1879; application filed July 24, 1879.

To all whom it may concern:

Be it known that I, WILLIAM A. GREENE, of Elizabethport, in the county of Union and State of New Jersey, have invented certain Improvements in Parlor or Heating Stoves, of which the following is a specification.

My present invention consists in certain improvements upon the stove shown and claimed in my Patent No. 214,906, dated April 29, 1879.

In the drawings, Figure 1 is a vertical mid-section of my improved stove. Fig. 2 is a front elevation of the same. Figs. 3, 4, and 5 are horizontal sections taken, respectively, in the planes of the lines *x x*, *y y*, and *z z* in Figs. 1 and 2. Figs. 6 and 7 are enlarged views, the former showing a modification of the partition and air-duct, and the latter being a detail of the blower.

Let A represent the outer walls of the stove; B, the fire-box thereof as a whole; C, the grate forming the bottom of the fire-box; D, the pendent partition in the fire-box, partially dividing the same into a front or primary combustion-chamber, E, and a back or secondary combustion-chamber, F; G, the charging-opening communicating with the chamber E; H, the perforated plate for supplying air to said chamber, and I the ash-pit.

The ash-pit is provided with a register, *a*, and with a removable ash-hearth, *b*. The fire-box B is provided with side lining-plates, *c c*, and the secondary chamber, F, has a sloping back wall, *d*, extending upward from and as a continuation of the grate.

The general construction and arrangement and the precise operation of these parts are fully and accurately described in my above-mentioned patent, to which I here make reference.

In my present construction the primary combustion-chamber E is, as seen in Fig. 1, of less height than in my former patent, and the opening G is correspondingly reduced.

The grate-surface is extended farther back and arranged in two planes, the front portion sloping back from the front to its lowest point just under the partition D, and the back portion, which is in the chamber F, sloping up from that point to where it joins the back

hearth-plate *d*. This formation I consider the preferable one; but it is not essential to my invention.

The back wall *d* is curved upward from where the grate joins it to a nearly vertical position, and the back wall A of the stove is continued in the same or a similar curve until a nearly horizontal position is reached, almost over the partition D, from which point it ascends vertically to the top of the stove.

The secondary combustion-chamber, F, is thus formed in a reverse curve or sweep, so that the direction of the gases which first enter it under the partition D is entirely changed, and they are directed back over the top of said partition toward the front of the stove.

As the gases ascend from the chamber F they enter the chamber or space F', which forms a virtual continuation of the chamber F, and in which they divide laterally and pass into side flues, J J, through which they ascend to the top of the stove. These flues (shown best in Fig. 4) are formed of the space between the outer side walls A of the stove and two vertical partitions, *e e*, arranged substantially parallel therewith, their lower edges resting on the horizontal, or nearly horizontal, roof *f* of the chamber E, and their front and back edges supported by the front and back walls of the stove.

At the top of the stove is a breeching-chamber, K, formed by a nearly horizontal partition or floor-plate, *g*, extending from the top of one partition, *e*, to the other, but leaving free communication from the flues J J, as shown in Fig. 3.

Just under the breeching K, and between the partitions *e e*, is arranged the off-take box L, its bottom and front sides being formed by a plate or plates, *h*, extending horizontally, or nearly so, at the bottom, and on an incline or vertically at the front. The back side of this box is formed by the back wall A of the stove, in which are the off-take aperture and pipe-collar *i*. An aperture, *j*, through the plate *g* affords communication with the breeching K, and an aperture, *k*, through the plate *h* communicates with the chamber F', this latter aperture being provided with a damper, *l*.

The space between the horizontal plates *f* and *g*, and between the vertical plates *ee*, forms an alcove, *M*, which is open to the front of the stove, the wall *A* being cut away in front of it. Communication between this alcove and the chamber *F'* or the interior of the stove is controlled by a removable blower, *m*, extending from the bottom plate, *f*, to the angle or corner in the plate *h*, the portion of which latter plate extending above the blower forms the back of the alcove. The blower is provided with one or more feet, *nn*, set at less than a right angle to its face, upon which feet it stands, with its top tilted forward when open to admit air to the combustion-chamber, as shown in Fig. 7. When closed it rests against its seat or frame, which inclines backward sufficiently to keep it in place, and the front edges or toes of its feet are lifted off the floor.

The blower *m* is preferably provided with mica panes for illuminating purposes.

A register, *o*, in the plate *h* permits of the admission of air from the alcove *M* to the off-take box *L*, and the handle by which the damper *l* is operated preferably projects into the alcove. In the roof-plate *f* of the primary combustion-chamber, *E*, back of the blower *m*, a register, *p*, is arranged, to permit of and control the passage of air from said chamber to the chamber *F'*. This register answers to the register *f* in my Patent No. 214,906, which fully describes its operation.

The roof-plate *f* descends in a gentle curve (or by a straight incline, if preferred) from the blower *m* to where it joins and rests upon the top of the partition *D*, which it preferably passes partly over and sets into sufficiently far to be flush with the back surface thereof. The partition *D*, I have now inclined in the opposite direction from that shown in my previous patent—that is to say, its top is nearer the front of the stove than its bottom. This is in consequence of the altered shape of the fire-box and the chamber *F*, whose throat opposite the register *p* would be too contracted were the partition to remain as before. It also prevents wedging of the coal against the plate *H* in the chamber *E*. Just behind the partition, and about midway of its height, and preferably at or about the center from which the cylindrical portion of the back outer wall *A* is struck, I arrange a perforated tube or air-duct, *N*, which extends horizontally, or nearly so, from one side of the stove to the other, and communicates with the outer air through apertures in the side walls *A A*. This air-duct being the subject of a separate application for patent, I make no broad claim to it in this.

In Fig. 6 is shown a modification, the partition *D* being made hollow and perforated along its lower edge, so as to act also as the air-duct *N*.

In the outside back wall *A*, just above the top of the hearth *d*, is an air-register, *q*, to admit a supply of air to the back part of the

chamber *F*, while the duct *N* supplies air to the front part of said chamber.

P is a mica window or door located in the curved back wall *A*, just above the register *q*, so that the illumination caused by the burning fuel and gases may be visible behind the stove.

The charging-opening *G* is or may be provided with sliding doors, as in my previous patent; but I prefer that they should slide inside the wall *A*, instead of outside of the same.

The perforated plate *H* is not removable in my present construction, and is provided with an outer door or doors, *tt*, arranged to slide across in front of it, and to cover up more or less of its perforations, whereby the admission of air to the chamber *E* may be controlled. These doors also serve to give a more finished appearance to the front of the stove.

Between the fixed perforated plate *H* and the doors *tt*, I prefer to arrange a plate, *H'*, perforated to correspond with the plate *H*, and capable of sliding across it a sufficient distance to cause a non-coincidence of the perforations, and thereby to shut off the supply of air, after the manner of a register.

The necessary holes, *uu*, for the insertion of a poker or slicing-bar to manipulate the fuel are formed through both plates *H H'*, and are covered when the doors *tt* are closed.

An opening is left in the front wall *A*, at a lower level than the grate and extending upward from the back edge of the ash-hearth *b*, through which the ashes that fall on the latter may be caused to enter the ash-pit. This opening is normally closed by a gravitating flap, *r*, hung on pivots or lugs at its ends and adapted to be pushed back, as shown in dotted lines in Fig. 1, while the ashes are being brushed into the ash-pit. This flap *v* is shown in front elevation in the small sketch under Fig. 1.

I am aware that a gravitating door or flap in the nature of my flap *v* has been before used in stoves, it being employed to close an opening considerably above the ash-hearth and just opposite the upper surface of the grate, through which a poker is inserted to manipulate the fuel. The opening in my stove is on a level with the ash-hearth, so that the ashes and coals can be pushed or brushed from the latter through the opening into the ash-pit, and is situated below the bottom of the grate, where it would be useless as a poke-hole.

In operating my stove, the path of the air and products of combustion is as follows: Air enters the register *a* and passes up into the fuel through the grate. Air also enters into the fuel through the perforated plate *H*, and it all passes under the partition *D* into the secondary combustion-chamber, *F*, and up in the latter as hydrocarbon gases. In this chamber the gases receive a second supply of air from the duct *N* on the front and the register *q* on the rear sides. As the gases sweep around the curved back wall of the chamber *F*, they are directed thereby toward the front

of the stove, and in the chamber *F'* they divide and pass to each side into the flues *J J*, up which they flow into the breeching *K*, where they unite, and from which they pass down through the aperture *j* into the off-take box *L*, and out into the pipe or chimney.

If it is desired to reduce the fire and cause it to burn slowly and quietly, cold air is admitted by the register *o* into the box *L*, and also over the top of the blower *m* into the chamber *F'*, by tilting the blower forward upon its feet, as in Fig. 7. To admit a still greater quantity of cool air the blower is removed entirely, being lifted out of the alcove.

In kindling the fire the register *o* and blower *m* are closed, and the damper *l* is removed off from the aperture *k*, so that the gases are permitted to pass directly from *F'* to *L*.

The alcove *M* serves as a sort of oven in which to keep articles hot, if required, or in which hands may be warmed, and for many other useful purposes.

I have in this description used the terms "front" and "back", as referring to the front and back of the stove when its parts are arranged precisely as shown, the front being the side in which the primary combustion-chamber is arranged, and the back the side in which the secondary combustion-chamber is arranged; but the stove may be so modified as to reverse this arrangement without materially departing from my invention.

I claim as my invention—

1. A parlor or heating stove having a primary combustion-chamber, *E*, a transverse partition, *D*, a grate, *C*, and a secondary combustion-chamber, *F*, whose back wall is curved in a uniform sweep upward and forward to a point higher than the top of the partition *D*, whereby the current of gases passing through it is directed toward the front of the stove over the said partition and into a flue or flues, substantially as set forth.

2. The chamber *E*, having a roof-plate, *f*, the grate *C*, the partition *D*, the chamber *F*, provided with a hearth-plate, *d*, and formed with a curved back wall extending upward and forward to a point nearly over the partition *D*, the chamber or space *F'* above the chamber *F*, and the flues *J J*, commencing above the roof-plate *f*, and forming an upward continuation of the chamber *F'*, all combined and arranged to operate substantially as set forth.

3. The combination of the chamber *E*, provided with air-inlet *H*, the transverse partition *D*, the grate *C*, and the chamber *F*, of a curved shape, and provided with air-inlets *N* and *q*, arranged upon opposite sides, substantially as set forth.

4. The combination, with the fire-box *B*, which extends the entire width of the stove, and is partially divided by the partition *D* into

two combustion-chambers, of the side flues, *J J*, extending upward from the fire-box, the breeching-chamber *K*, and off-take box *L*, substantially as set forth.

5. The alcove *M*, arranged in the front of the stove, between the flues *J J*, forward of the chamber or space *F'*, over the combustion-chamber *E*, and under the breeching-chamber *K*, substantially as and for the purposes set forth.

6. The combination and arrangement of the horizontal plates *f* and *g*, the vertical partitions *e e*, the plate *h*, and the blower *m* with the walls of the stove, to form the space or chamber *F'*, the flues *J J*, the breeching-chamber *K*, the off-take box *L*, and the alcove *M*, substantially as set forth.

7. The blower *m*, arranged to close the opening between the alcove *M* and chamber *F'*, provided with a foot or feet, *n*, arranged at less than a right angle with the plane of the door, substantially as set forth.

8. The off-take box *L*, arranged between the side flues, *J J*, and beneath the breeching *K*, provided with an aperture, *j*, communicating with said breeching, and tapped by the pipe-collar *i*, substantially as set forth.

9. The off-take box *L*, arranged between the flues *J J* and between the chambers *F'* and *K*, provided with the pipe-collar *i*, the apertures *j* and *k*, and the damper *l*, substantially as set forth.

10. The combination of the fixed perforated plate *H*, the sliding perforated plate *H'*, adapted to act as a register, the poke-holes *u u*, formed through both plates, and the outer door or doors, *t t*, adapted when closed to cover the poke-holes and conceal the perforated plates, substantially as set forth.

11. The combination, with the ash-hearth *b* and front wall *A*, of the hanging door or flap *v*, arranged below the level of the grate and adapted to close by gravity, a space or opening in the front wall extending upward from the back edge of the hearth and communicating with the ash-pit, substantially as and for the purposes set forth.

12. The removable blower *m*, arranged in the alcove *M*, to admit air over its top to the chamber *F'* when tilted or moved forward, in combination with the register *o*, arranged in the plate *h*, to admit air from the alcove to the off-take box *L*, both of which act to reduce the draft and cool the fire, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM A. GREENE.

Witnesses:

ARTHUR C. FRASER,
HENRY CONNETT.