

EDWARD BROWN. Base Burning Stove.

No. 124,325.

Patented March 5, 1872.

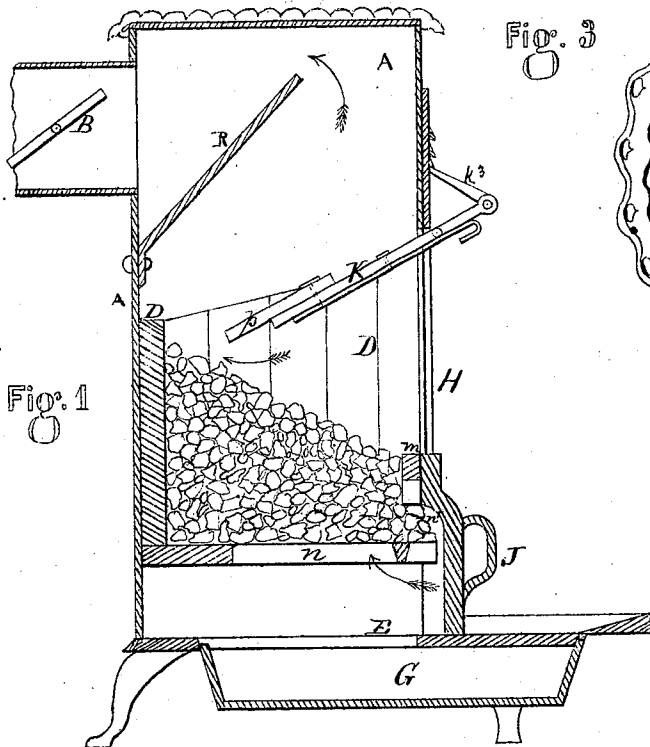


Fig. 3

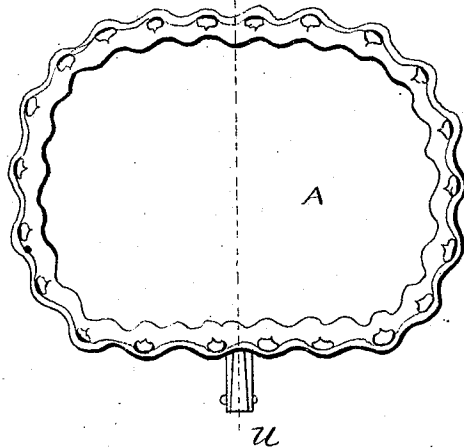


Fig. 4

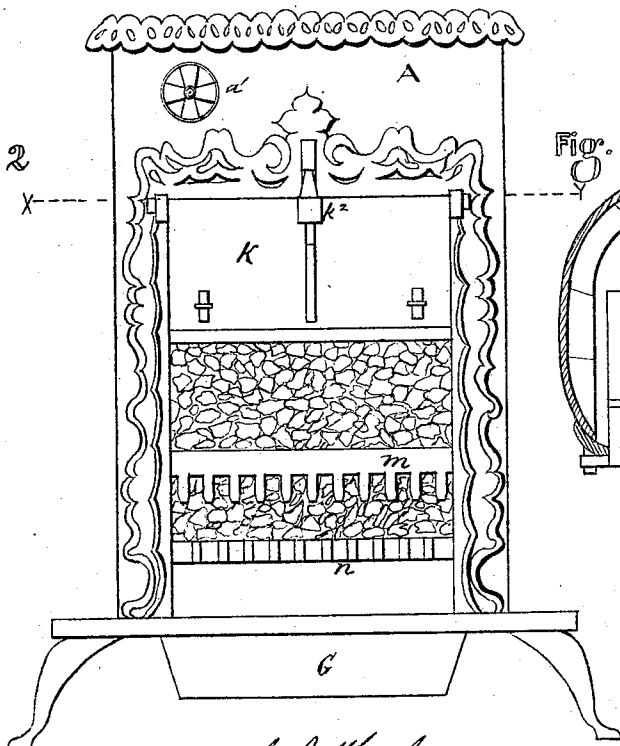
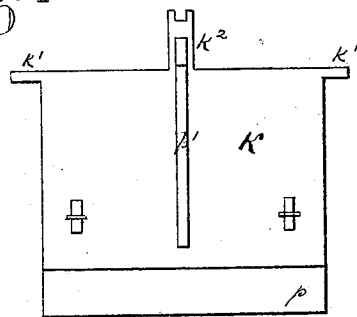
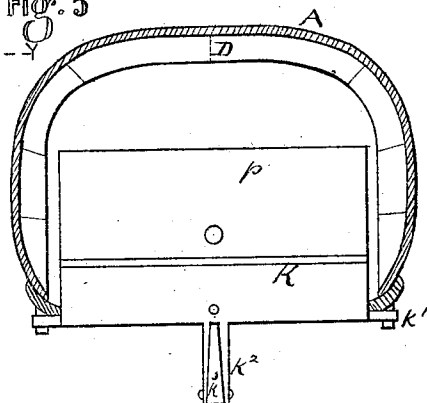


Fig. 5



Witnesses { Park W. Garland
John S. Grant

Edw. Brown

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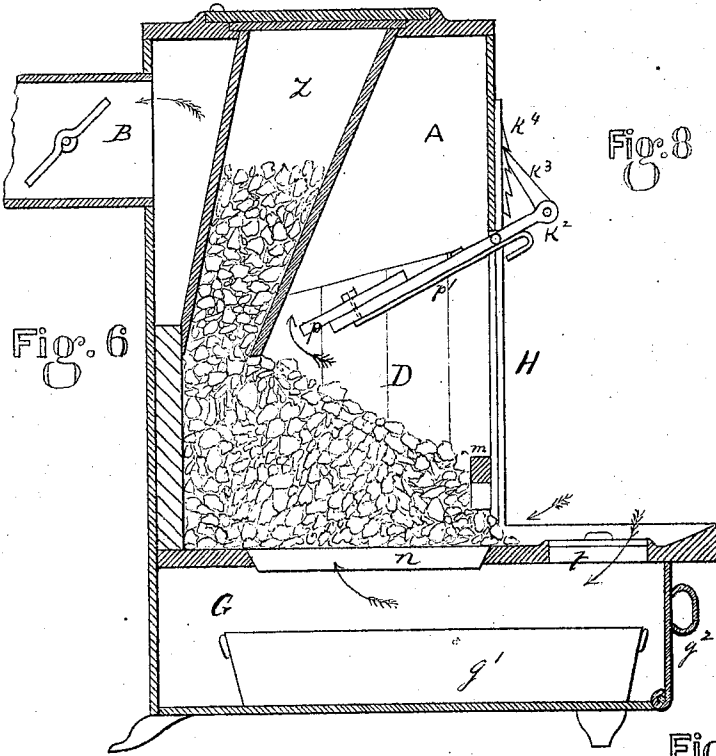


Fig. 6

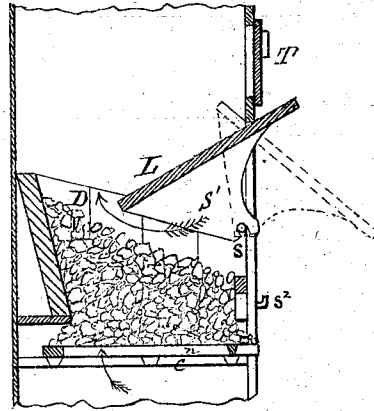


Fig. 8

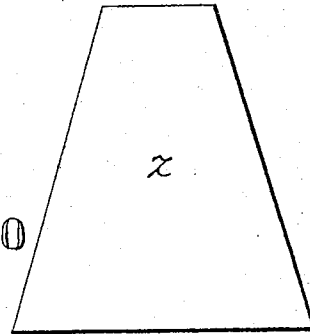


Fig. 10

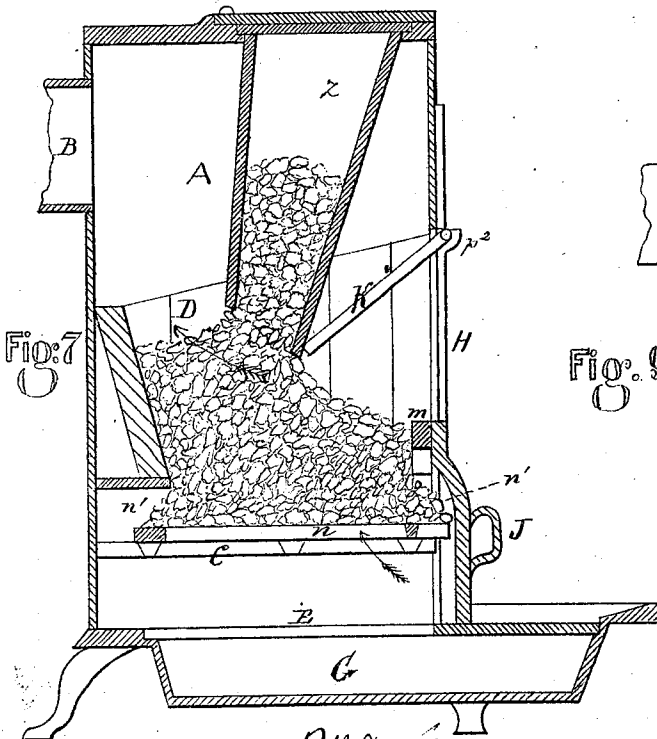


Fig. 7

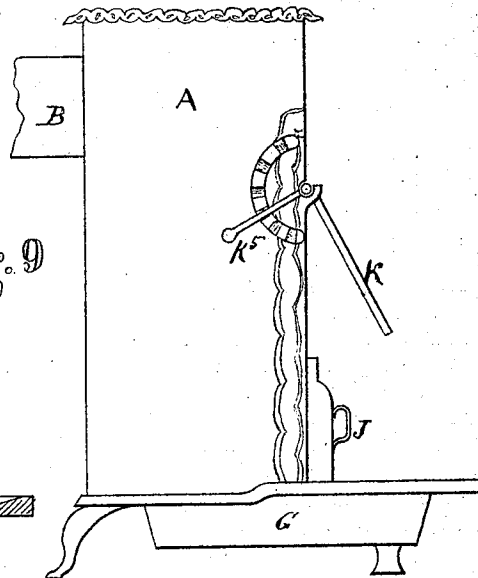


Fig. 9

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UNITED STATES PATENT OFFICE.

EDWARD BROWN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THE GRATES AND DOORS OF OPEN-GRATE OR PARLOR STOVES.

Specification forming part of Letters Patent No. 124,325, dated March 5, 1872.

Specification describing certain Improvements in Parlor-Stoves, invented by EDWARD BROWN, 311 Walnut street, Philadelphia, Pennsylvania.

My invention relates to the construction of parlor-stoves, generally known as open-grate stoves; and the improvement consists chiefly in the arrangement and operation of the door of the stove. This is accomplished by inclining the door inward, and making its lower edge terminate upon or near the surface of the fire, so as to obstruct the draught from passing so freely over it, and forcing it through the fire, thereby obtaining a direct radiation from the surface of a constantly bright fire, preventing the cooling of the room caused by the rushing of a large body of air over the fire, and yet permitting sufficient to maintain a healthful circulation in the room. A small stove will thus warm a much larger room than when constructed in the usual manner with sliding doors, or without any doors at all. To make this door additionally useful, I have so hinged it that it will accomplish the purpose above described, and also act as a blower to draw up the fire, or as a shield to prevent the fire from scorching the furniture, as sometimes happens with open grates.

There are also several other minor improvements introduced, which contribute to the general improvement of the stove—viz., the construction of the fire-grate, and its arrangement in combination with the ash-pit and drawer; also, the arrangement of a reservoir within the stove in combination with these improvements.

Referring to the drawing, Figure 1 is a section through the interior of the stove on the line *u v*. Fig. 2 is a front view of the stove. Fig. 3 is a plan of the top. Fig. 4 is a front view of the door. Fig. 5 is a horizontal section on the line *X Y*. Fig. 6 is a section, showing the stove adapted to a reservoir and a different arrangement of grate. Fig. 7 is a similar section with the reservoir moved more to the front. Fig. 8 is a similar section, showing the door hung from a different point. Fig. 9 is a side view, showing the door operated by a side arm. Fig. 10 is a front view of the reservoir.

I construct my stove with a sheet-iron cas-

ing, *A*, having a stove-pipe, *B*, with a damper in it. (See Fig. 1.) The lower part of the casing contains the fire-pot *D*, which is made high at the back, and the front is closed by a bar or bars, *m*, so that the coals can be banked upon an incline, thereby showing the surface of the fire to better advantage. The fire is retained in front by a bar or bars, *m*, running across. The grate *n* is shown close to the fire-pot at the back, and at the front it is at a distance of about one and a half inches below the bar *m*, so as to leave room for the removal of slate and clinkers without dumping the fire. The grate extends sufficiently beyond the bar *m* to prevent the coals falling out. The ashes, which fall upon the grated plate *E*, pass through into the cast-iron base *G*, and can be removed after lifting out the plate *E*. *J* is a damper-plate, which is put on at night to check the draught through the grate *n* and prevent the fire burning out. This damper *J* may be hinged to the plate *E* and have mica windows in it. In the front of the casing *A* is a large rectangular opening, *H*, through which the fire is seen and the coals are put on.

The advantages of the open-grate fire are in the direct radiation of the heat from the coals, and also in the cheerful effect produced by the light from them. There has been, however, a difficulty in combining these results heretofore. As soon as the doors are removed from the opening *H*, the draught passes over the fire direct into the chimney, and the fire becomes dull, and the room is rapidly cooled off.

To obviate this I suspend the door *K*, by pivots *K*¹, at its upper edge. These pivots rest in half-round sockets *p*² cast on the front of the stove. The door, being thus hung, is capable of being placed in a perpendicular position, so as to force all the draught through the fire. Then, when the fire is bright, I place the door inclined inward, as shown in Fig. 1. It is retained in this position by means of a short arm, *K*², having a link, *K*³, which falls against the ratchet *K*⁴ on the stove-front. When the door is in this position, the fire can be seen by persons in the room, and the direct radiation will take place just as if there was no door at all. At the same time, by the

closeness of the lower edge of the door to the fire, the air from the room is very much prevented from rushing up the chimney, and a better draught is made through the fire from below, thus keeping the surface of the fire bright and cheerful. On the lower edge of the door is a sliding plate, *p*, operated by the rod *p*¹. This is used to lengthen the door nearer to the coals when necessary.

It is obvious that the inclined door *K* may be fixed rigidly to the stove in the position shown in Fig. 1, and the ordinary sliding doors, as at present in use, retained to blow up the fire; or it can slide in an inclined groove on each side of the opening, like a sliding damper.

If the arm *K*², which operates the door, is fixed on one of the pivots at the side, as shown at *K*³, Fig. 9, and in section at Fig. 7, the door can then be inclined outward to act as a guard or shield against the rays from the fire scorching the furniture of a room, this guard being frequently necessary with open grates.

In Fig. 8 is seen the inclined door *L* hinged, by means of the arms or wings *s*¹, upon the pivots *s*, one of each being on each side of the opening. The door naturally assumes the position shown in this figure by its own gravity.

It can, however, be tilted over to the reverse position, shown by the dotted lines, so as to act as a shield when the heat is too great; or it can be lifted off the pivots *s* and placed upon the supports *s*², so as to act as a blower, thus performing all the functions of the door shown in the Figs. 6 and 7, except that it cannot be regulated to such exactness.

When the sides of the fire-pot *D* are flat, as shown in Fig. 5, not much air will escape past the sides of the doors *K* and *L*; but, if the fire-pot be circular, the wings *s*¹, shown in Fig. 8, are required to be secured to the doors or the inside of the stove, to prevent the air passing on each side. When the door *L* is hinged, as shown in Fig. 8, by curving the upper projecting part to the radius of the pivot *s*, the lower end of the door will adjust itself to the level of the surface of the fire without the need of the sliding plate *p*. A shield, *R*, is placed in front of the chimney to throw the heat more to the front of the stove, and utilize it better than if the heat passed direct into the chimney. The direction of the draught is shown by the arrows.

Fig. 6 shows my stove with a reservoir of coal, *Z*, adapted to it. This reservoir is circular at the top, spreading out fan-shaped at the bottom, (see Fig. 10,) so as to extend nearly across the fire-pot and close to the back. There is space left between the lower edge of the door *K* and the reservoir for the passage of the gases. The grate is here shown immediately above the ash-box *G*, the air being admitted through the register *t*. The ashes fall into the pan *g*¹, and are taken out through door *g*².

In Fig. 7 the reservoir *Z* is shown more to the front of the stove, space being left at the

rear for the escape of smoke and gases. The lower end of the door *K* in this case touches the reservoir *Z*. The grate *n* is here placed so that there is an opening, *n'*, both in front and rear, for the removal of clinkers. This grate slides out upon the guides *c*, (one of which is on each side of the stove,) so that all the fire can be dumped at once. The door can be polished bright so as to reflect the fire, or it can have mica windows in it, so that the fire may be seen in whatever position the door may be.

In feeding the fire when there is no reservoir, the door *K* is first thrown into a horizontal position, and then let fall into whatever position is desired; or the coals can be thrown first to the back of the stove through the upper door *T*, shown in Fig. 8. *a'* is a register for admitting air. This door *K* can also be applied to "low-down grates," if the front circle is made to conform to the rectangular opening *H*, herein described, as also to fireplace heaters. A stove constructed in this manner combines the advantages of the low-down grate with those obtained in stoves like the "Morning Glory."

The direct and healthful radiation of the heat is obtained from a constantly bright fire. The draught through the room, common to open "low-down grates," is much modified, and much of the heat which passes upward with the gases is available for warming the room through the casing *A* of the upper part of the stove.

I do not claim an inclined shelf terminating beneath the main body of the fire, so as to form a dump-hole for the removal of ashes. My inclined door terminates at the surface or above the main body of the fire, for the purpose of checking the draught over the fire, the main body of the fire being contained below in a fire-pot, or fire-pot with front bars, as previously described. Neither do I claim the reservoir by itself, or the grate *c*, placed at a distance from the fire-pot, and extending beyond it.

What I claim is—

1. The inclined door *K*, terminating above the surface of the fire, in combination with a fire-pot, or a fire-pot, *D*, and front bars *m*, as and for the purpose herein described.

2. The inclined and adjustable door *K*, provided with the lengthening-slide *p*, for adjusting its length to the height of the coals or the fire-bar *m*, as herein described.

3. The door *K*, hung so as to swing vertically, and adjustable to a position inclining inward, or in a perpendicular position as a blower, or an outward inclination as a shield, substantially as shown in Fig. 9, and herein described.

4. The door *L*, with side wings *s*¹, to prevent the passage of the air under the sides of the door, substantially as shown in Fig. 8, and herein described.

5. The door *L*, hinged upon the pivots *s*, as

shown in Fig. 8, and reversible, so as to act as a shield or as a blower, as herein described.

6. The combination and arrangement of the inclined door K, the fire-pot D, and the grate *n*, extending beyond the lower mouth of the fire-pot, substantially as herein shown and described.

7. The combination of the reservoir Z, the

inclined and adjustable door K, and the fire-pot D, all arranged and operating as herein described.

EDWD. BROWN.

Witnesses:

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