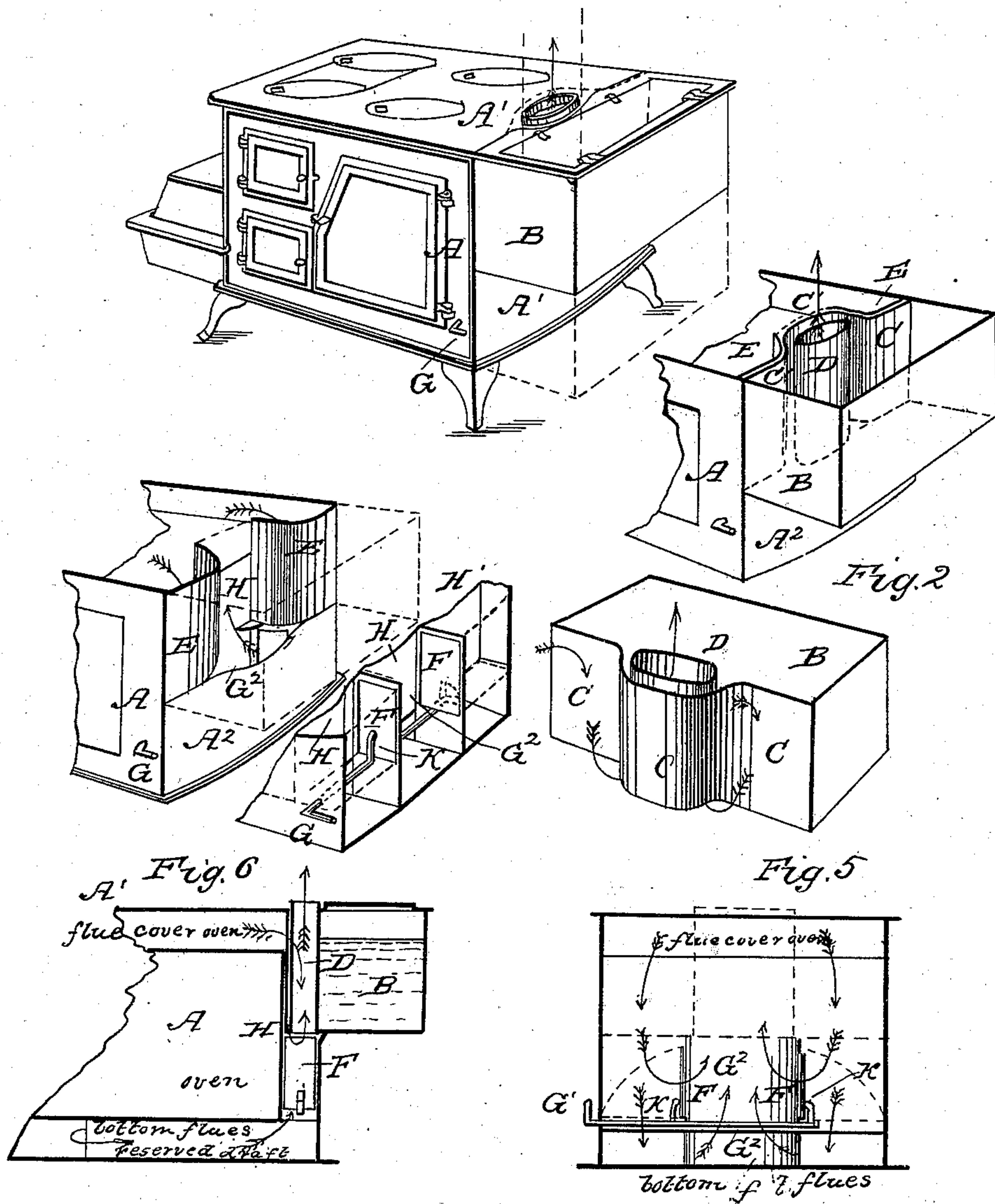


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Water Reservoir for Cooking Stoves.

No. 99,529.

Patented Feb 8, 1870.



Witnesses  
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# UNITED STATES PATENT OFFICE.

ESEK BUSSEY, OF TROY, NEW YORK.

## WATER-RESERVOIR FOR COOKING-STOVES.

Specification forming part of Letters Patent No. 99,529, dated February 8, 1870.

*To all whom it may concern:*

Be it known that I, ESEK BUSSEY, of the city of Troy, in the county of Rensselaer and State of New York, have invented certain Improvements in Water-Reservoirs, and their connection and combination with cooking-stoves, of which the following is a specification:

The nature of my invention consists in the construction and use of a water reservoir or tank and its connection and combination with a cooking-stove, the front wall or plate of the water-reservoir, joining the stove, being curved or formed in a peculiar manner, for purposes mentioned hereinafter, and the water-reservoir also having a flue running upward through its interior, which flue forms a continuation of the ascending or middle back flue of the stove when the water-reservoir is connected or combined therewith.

It also consists in the use and construction of dampered apertures in and through the vertical flue-strips which divide the back ascending and descending flues of the stove; the dampers so constructed that, when open, the heated air and products of combustion which pass downward through the descending flues may be arrested in their course and turned into the middle or ascending flue, through which they may rise to the exit-pipe above, the object being to heat the oven of the stove and the water-reservoir at the same time by what is technically called the "direct draft."

It also consists in the construction and use of curved or bent vertical plates, or their equivalent covering, surrounding or inclosing the two outside vertical corner flues of the stove, commonly called the "diving or descending flues," said plates reaching from the upper edge of the back plate of the stove upward to the top plate of the stove, so that the water-reservoir will not come in direct contact with the heated air passing through the two corner or descending flues of the stove, the object of these plates being to protect the descending currents of heated air within said flues, thereby preventing the liability of cooling, as it might if in contact with the plates or wall of the water-reservoir when it contains fresh or but partially heated water.

It also consists in the shutting off permanently of the direct draft, as generally used

at the upper back part above the oven, in any suitable way, so that the heated air and products of combustion must turn down through the descending flue or flues toward the bottom of the oven, thereby heating the back part of the oven, and then, at that point, turning the heated air into the middle or ascending flue, so that it rises to the exit-pipe.

Referring to the accompanying drawings, Figure 1 is a general perspective view of a cooking-stove, with the water-reservoir shown connected or combined therewith. Fig. 2 is a perspective view of a part of a cooking-stove, (being the rear or back end of the stove,) with water-reservoir connected, the top of the stove and reservoir removed, dotted lines showing the opposite angles and lines of the reservoir. Fig. 3 is a perspective view of the back end of a cooking-stove, water-reservoir removed, dotted lines showing its position when present. Fig. 4 is a perspective view of a part of the back end of a stove, the back plate being removed so as to show the flue-strips dividing the back vertical flues, and through which are the apertures, opened and closed by the valves or dampers, as above mentioned, and which are shown closed, dotted lines showing their position when open. Fig. 5 represents the water reservoir or tank separate from the stove and without a top or cover. Fig. 6 is a vertical lengthwise section of the back end of the stove through the middle back flue, showing the reservoir in its position combined with the stove. Fig. 7 is a vertical transverse section of a stove on a line drawn through the back vertical ascending and descending flues, dotted lines showing the position of the reservoir, and dotted lines also showing the dropping of the valves or dampers mentioned above.

Like letters refer to like or corresponding parts. Arrows show the direction of currents.

A represents the stove, which may be as usually constructed in general, and my invention can be applied to the styles usually manufactured. B represents the water-reservoir.

The top plate of the stove, A<sup>1</sup>, may extend over the water-reservoir, as shown in Fig. 1, or the reservoir may have its own top or cover, and the same may be above or below, or on a line or level with the top plate of the stove, as



most suitable or convenient, in any of the modes now usually adopted in stove-manufacture.

The wall or plate of the water-reservoir next adjoining the stove, and marked C, I construct with a curve or bend outward, as shown at C', and just within this curve I construct the pipe or flue D, which passes upward within the walls of the reservoir and distinct therefrom, so that the water in the reservoir may circulate freely all around said flue. Next I bring the back plate of the stove, A<sup>2</sup>, up from the bottom of the stove, as shown, to the place where I want the bottom of the reservoir to sit, and adapting the upper edge of the plate A<sup>2</sup> to that purpose. Then, above this point, from thence to the top plate of the stove A<sup>1</sup>, I construct and place the plates E, Fig. 3, curved, bent, or formed so they will conform in shape with the wall of the water-reservoir, marked C and C', so that the corner or outside flues of the stove (being the descending or diving flues) are inclosed and separated from direct contact with the walls of the reservoir. It will be seen by referring to Fig. 3 that by this arrangement the middle or ascending flue is exposed from the upper edge of the back plate, A<sup>2</sup>, upward.

I place the water-reservoir against the stove, its bottom resting or joining upon the back plate, A<sup>2</sup>, and the curved wall C', entering the space of the ascending-flue, covering the same, so that the flue or pipe D of the reservoir will form the ascending back flue of the stove from the bottom of the water-reservoir to the top, as it forms the communication from the middle flue beneath the stove and at the back lower part upward to the pipe-collar and exit-pipe.

The reservoir may be securely fastened in its place by any suitable means. The flues below the water-reservoir are divided by flue-strips, as usual, except that above the bottom flues of the stove and below the bottom of the reservoir I construct and place flue-strips, with a proper-sized aperture in each, which I provide with suitable valves or dampers F, so constructed that when the handle G<sup>1</sup> is turned upward the projections on the rod G at K will cause the valves or dampers to rise and close the apertures, and then the draft-current is downward through the two corner flues, along the two outside flues, underneath the stove, and return through the middle flue underneath the stove in the usual way; and thence, ascending the middle back flue upward through the flue of the reservoir D, pass out through the exit-pipe; and by turning down horizontally the handle G<sup>1</sup> the projections K are also turned down, and the valves or dampers F fall and are extended horizontally so as to close up the two corner flues

and leave the apertures through the vertical flue-strips open; and then, in this case, the heated air and products of combustion pass downward through the two corner flues until they reach the dampers or valves F, and there they are turned into the middle flue, G<sup>2</sup>, through which and its continuation D of the water-reservoir they ascend to the exit-pipe, as before, and this forms what is technically termed the "direct draft."

It will be seen that by this means a great heat is applied to the oven of the stove when a direct draft is used all down the back, and at the same time a powerful heat is brought to bear upon the water-reservoir by the ascending current, while in a reversed draft the oven is heated as usual.

The plates E, by preventing too close contact of the water-reservoir with the corner or diving flues, keep the air within said flues from being cooled, as it might be if at any time cold or fresh water should be placed within the reservoir; and at the same time water may be very quickly heated by this means when wanted, without in any way impairing the efficiency of the stove-oven.

I claim as my invention—

1. The use and construction of a water-reservoir for a cooking-stove, having its walls C and C' next the stove curved, bent, or formed in the manner and for the purpose as described and set forth.

2. The use and construction of the flue or pipe D, or its equivalent, (being a part of the water-reservoir,) in combination with the back ascending flue and the descending flue or flues of a cooking-stove, substantially as and for the purpose described and set forth.

3. The use and construction of the curved or bent plates E, or their equivalent, for the purpose and in the manner substantially as described and set forth.

4. A damper or dampers, constructed in the rear upright-flue division plate or plates, so that when open the gases of combustion, in their passage from the fire-box to the smoke-pipe, will pass down in the rear of the oven only and return upward to exit-passage, thereby heating the oven with a direct draft.

5. A damper or dampers, constructed in the rear upright-flue division plate or plates, in combination with a water-reservoir placed behind the rear flues of a diving-flue cooking-stove, so that when open the gases of combustion, in their passage from the fire-box to the smoke-pipe, will heat the water-reservoir and rear of the oven at the same time without passing around the oven.

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Witnesses:

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