

(No Model.)

J. A. PRICE.  
COOKING STOVE.

No. 418,851.

Patented Jan. 7, 1890.

Fig. 1.

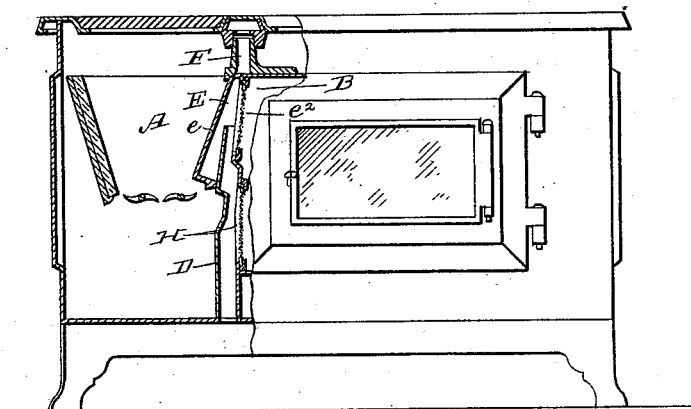


Fig. 2.

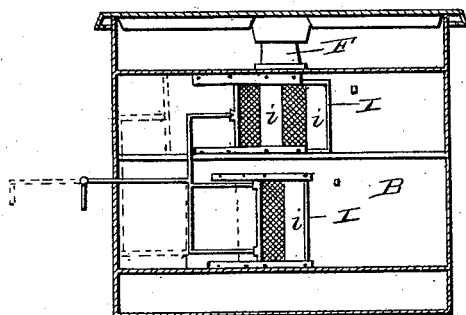


Fig. 3.

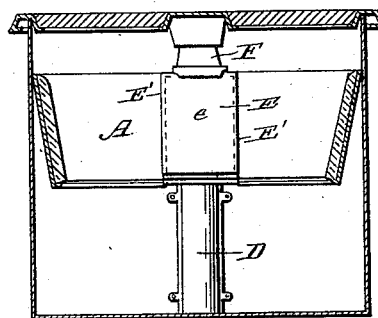


Fig. 4.

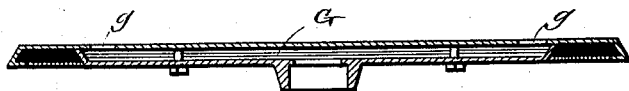
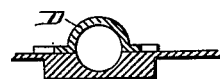


Fig. 5.



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by  
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# UNITED STATES PATENT OFFICE.

JOHN A. PRICE, OF SCRANTON, PENNSYLVANIA.

## COOKING-STOVE.

SPECIFICATION forming part of Letters Patent No. 418,851, dated January 7, 1890.

Application filed March 11, 1889. Serial No. 302,767. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. PRICE, of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Cooking-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention has for its object to provide an improved ventilated-oven cooking-stove in which the circulating air will materially assist in the cooking operation, and at the same time make the stove an economical one in the consumption of fuel.

To these ends the invention consists in certain novel details of construction and combinations and arrangements of parts to be hereinafter described, and pointed out particularly in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a stove constructed in accordance with my invention. Fig. 2 is a sectional view through the oven, looking toward the front. Fig. 3 is a sectional view taken down through the fire-pot and ash-pit, looking toward the rear. Fig. 4 is a section of the hollow cross-piece, showing the discharge-openings and top of the ventilating-flue. Fig. 5 is a section through the air-duct.

Similar letters indicate like parts.

The invention may be applied to cooking-stoves of any desired design, but is particularly well adapted for application to a stove of the type illustrated in the drawings—i. e., the ordinary square cook-stove—in which the fire-pot A is located forward of the oven B, and the flues so arranged as that the products of combustion and smoke pass over the oven and, if desired, circulate around the same before passing off up the chimney.

Between the fire-pot and the oven I arrange the ventilating-duct, consisting, preferably, of the lower section opening below the stove, and formed by bolting or otherwise securing the hollow section D to the front of the oven-plate, which latter, when constructed especially for the purpose, may be recessed, as

shown in Fig. 5, to form a substantially-circular opening, and the upper section consisting of the chamber formed by the section E, with the thin wall *e* next the fire pot, and the opening *e*<sup>2</sup> next the oven, and the exit for the air from the chamber to the cross-piece at the top. The section E, forming the chamber, as just pointed out, is interposed between the sections of fire-brick at the rear end of the fire-pot, with the thin wall *e* directly exposed to the action of the fire in the fire-pot, as shown, said wall being thus easily raised to incandescence by reason of the small thickness of metal, but is prevented from warping by the strong side walls E' and relatively small size of the section, as well as the constant circulation of air against the rear surface.

In order that the chamber may serve to heat the air more effectually, the end of the lower section is brought up to about the middle of the chamber, whereby the cold or only slightly-heated air discharged from said duct will tend to sink to the bottom of the chamber and become expanded and heated before being allowed to enter into the oven through the opening *e*<sup>2</sup>, located in the side of the chamber, as before mentioned.

Above the chamber E and communicating therewith is a short duct F, passing through the smoke-flue above the oven and opening into the cross-piece G at the top. This cross-piece is hollow, and is provided with discharge-openings *g* at each end opening above the stove.

The opening *e*<sup>2</sup> in the chamber is directly opposite the thin wall *e*, next the fire-pot, whereby the full beneficial effect of the direct radiation from the thin wall is derived for cooking purposes. At the same time the circulation through the oven by the entrance of the more highly-heated air and the exit of the cooled and moist air is facilitated by the air sweeping through the duct without causing such a draft and rapid passage of air through the oven itself as to retard the cooking operation—a common fault in ventilated ovens as heretofore constructed, and in which the entire body of air, whether heated or not, was compelled to pass through the oven from one side to the other.

In some instances it is found desirable to

expose more of the duct to the oven, and for this purpose I locate an opening II in the lower section, which, with opening  $e^2$ , permits of the free natural circulation into and out of the oven at top and bottom. The circulation of the air may be, and preferably is, regulated by foraminous dampers I, (such as wire-gauze dampers,) which may be moved over one or both of the openings between the oven and duct or chamber, as shown, and, if desired, such dampers may be provided with solid sections  $i$  for entirely cutting off the circulation, in which instance the air passing through the duct will serve to prevent the burning out of the thin walls of the duct or the cross-piece.

As before mentioned, the front wall of the heating-chamber is thin and adapted to be brought to a state of incandescence by the fire and light up the oven through the opening in the opposite side of the chamber. Now, for the purpose of enabling the contents of the oven to be readily inspected, I locate a glass panel in the side of the oven, preferably in the door, as shown. The short duct F, located directly in the path of the heated products passing from the fire-pot, is heated to a high degree and adds an impulse to the current of air passing through the duct, keeping the column of air constantly in motion and serving to start the circulation as soon as the fire is lighted.

Other forms of ducts may be employed, if desired, and I do not wish to be limited to the specific form described, although the same has many advantages in ease of application and slight cost, which render it preferable.

It will thus be seen that I have produced a stove having an oven well ventilated without forcing any currents of air through the same, and in which the full effect of the direct radiation of a thin iron plate next the fire is obtained.

By the employment of a duct passing from one side of the stove straight through to the other and ventilating from this duct all danger of smoke entering the chamber is avoided. At the same time the heat of the smoke and other gases is utilized to promote the circulation by heating the air within the duct to a very high degree as it passes out at the top of the stove.

In an application filed by me on the 10th day of October, 1889, Serial No. 326,551, I have described and claimed the herein-disclosed damper, in combination with a ventilating-flue, the alternate arrangement of fire-brick and iron sections with air-flues at the back of the fire-pot, and a flue open to the external air leading into the oven, and a hollow cross-piece, also connecting with the oven, and therefore I do not wish to be understood as abandoning said subject-matter by reason of the failure to claim the same herein.

Having thus described my invention, what I claim as new is—

1. In a cooking-stove, the combination, with

the fire-pot and oven, of an air-duct for the inlet of the external air, having a portion of its side wall exposed to the direct action of the fire in the fire-pot and having an opening leading into the oven, and a hollow bridge-piece open to the external air and in communication with said air-duct, substantially as described.

2. In a cooking-stove, the combination, with the fire-pot and oven, of an air-duct for the inlet of external air, having a portion of its side wall exposed to the direct action of the fire in the fire-pot and having an opening opposite said exposed portion leading into the oven, and a hollow bridge-piece open to the external air and in communication with said air-duct, substantially as described.

3. In a cooking-stove, the combination, with the fire-pot and oven, of an air-duct for the inlet of external air, having a portion of its side wall exposed to the direct action of the fire in the fire-pot, with an opening leading into the oven and a discharge-opening above the top of the stove, substantially as described.

4. In a cooking-stove, the combination, with the fire-pot and oven, of an air-duct for the inlet of external air, having a portion of its side wall exposed to the direct action of the fire in the fire-pot and having an opening leading into the oven, a slide or damper for covering the same, and a hollow bridge-piece open to the external air and in communication with said air-duct, substantially as described.

5. In a cooking-stove, the combination, with the fire-pot and oven, of an air-duct for the inlet of external air, having a portion of its side wall exposed to the direct action of the fire in the fire-pot and having an opening leading into the oven, a foraminous slide or damper for covering the same, and a hollow bridge-piece open to the external air and in communication with said air-duct, substantially as described.

6. In a cooking-stove, the combination, with the fire-pot and oven, of an air-duct for the inlet of external air, having a portion of its side wall exposed to the direct action of the fire in the fire-pot and having an opening leading into the oven a slide or damper covering said opening having a foraminous and a solid portion, and a discharge-opening, substantially as described.

7. In a cooking-stove, the combination, with the fire-pot and oven, of a heating-chamber forming a portion of the walls of the fire-pot and having an opening into the oven and communicating with the external air, and an air-inlet duct discharging at or near the middle of said chamber, substantially as described.

8. In a cooking-stove, the combination, with the fire-pot and oven, of a heating-chamber forming a portion of the walls of the fire-pot and having an opening into the oven, a damper for covering said opening, a communication between said chamber and the external air, and an air-inlet duct discharging at or near

the middle of said chamber, substantially as described.

9. In a cooking-stove, the combination, with the fire-pot and oven, of a heating-chamber 5 forming a portion of the walls of the fire-pot and having an opening into the oven, a damper for covering said opening, having the solid and foraminous parts, a communication between said chamber and the external air, and 10 an air-inlet duct discharging at or near the middle of said chamber, substantially as described.

10. The combination, with the oven having a transparent panel, of the fire-pot having an 15 incandescing portion exposed to the interior of the oven, substantially as described.

11. The combination, with the fire-pot and oven, of an air-heating chamber having a portion of its walls exposed to the fire in the

fire-pot and an opening opposite said exposed 20 portion leading into the oven and a transparent panel in the side of the oven, whereby, when the exposed surface of the air-heating chamber is heated to incandescence, it will 25 illuminate the contents of the oven and enable the latter to be clearly observed through the transparent panel.

12. In a cooking-stove, the combination of the oven-plate, the plate constituting the air-inlet duct bolted thereto, and the plate 30 exposed to the fire in the fire-pot and constituting the wall of a heating-chamber, substantially as described.

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Witnesses:

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