

J. B. WILKINSON.  
Cooking-Stoves.

No. 151,817.

Patented June 9, 1874.

Fig. 1.

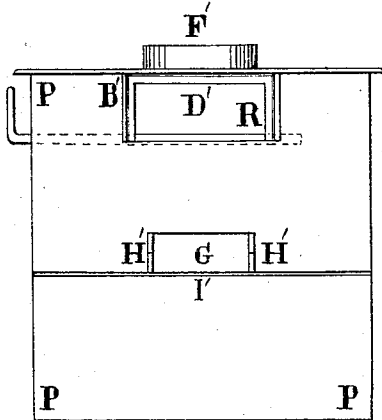


Fig. 2.

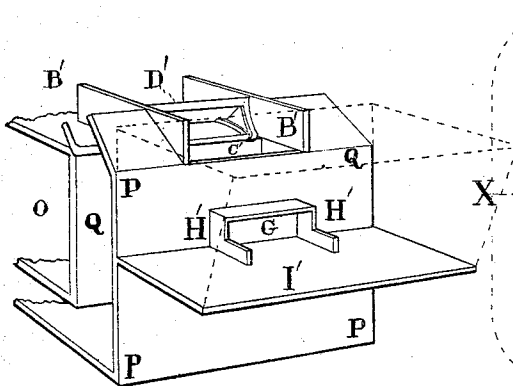
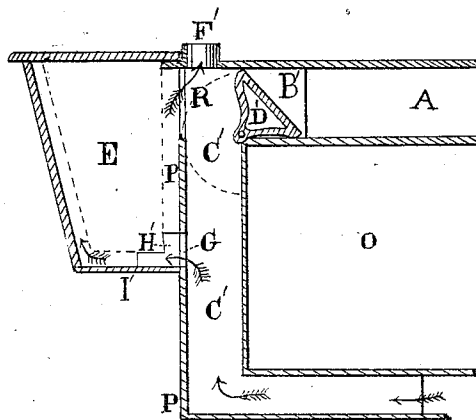


Fig. 4.

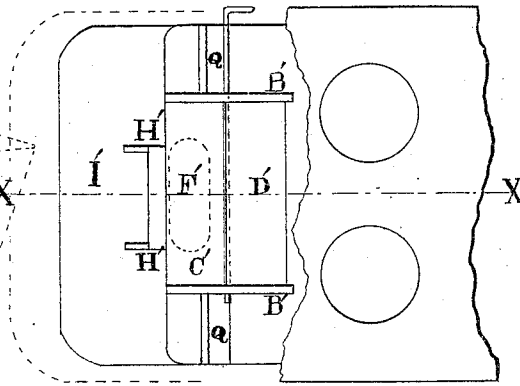
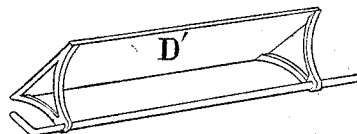


Fig. 3.

Fig. 5.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **151,817**, dated June 9, 1874; application filed February 23, 1874.

*To all whom it may concern:*

Be it known that I, JOSEPH B. WILKINSON, of Troy, county of Rensselaer and State of New York, have invented an Improvement in Cooking-Stoves, of which the following is a specification:

The invention that forms the subject of this patent relates to that class of cook-stoves commonly denominated "diving-flue" cook-stoves, usually made with three flues, with an incased water-reservoir located upon the exterior of such stoves, and the pipe-collar over the ascending rear flue and in front of the reservoir. It consists in an improved shape and form of damper, with the operation and location of the same, to produce an improved method of heating a reservoir attachment at the rear end of such diving-flue cooking-stove.

My damper is prismatic or triangular, with a flange upon the outer angles or base of the triangle, the other two sides being open or in skeleton form. This damper is placed upon a spindle, and made to operate in the rear ascending flue upon a plane with the top sheet-flue.

By means of this one damper three distinct and separate currents of draft may be created. To operate a stove in so simple a manner, and to achieve results so manifold, is a very valuable improvement in the form and location of dampers in stoves of the class to which this invention relates. In the first place, it is desirable, when starting the fire in a cooking-stove, to get the most direct draft, that the fire may burn more freely and strongly. This is accomplished by turning the damper backward to its farthest limit, to wit, one hundred and eighty degrees from its point of departure. In this case the products of combustion will seek the most direct outlet, and will pass along the top sheet-flue, and out at the exit-pipe. Next, it may be desirable to heat the oven for baking purposes without, at the same time, diverting the hot-air currents into the reservoir-chamber, whereby the water in the reservoir would materially cool them, and thus rob the oven of the full power of the heat; and this result may be obtained by turning the damper forward one hundred and eighty degrees from its last position. In this case the hot-air currents divide above the oven, pass

down the corner flues, the passage to the middle flue being closed, thence traversing the bottom of the oven; and, uniting, they pass up the rear ascending flue to the exit-passage. By this process the oven is thoroughly heated upon the top, front, rear, and bottom, the reservoir being comparatively unaffected, inasmuch as it receives only the caloric that expands through the aperture G on its way to the exit-passage.

After the oven has thus been thoroughly heated, it may be desirable to concentrate the full power of the column upon the reservoir to heat the water therein contained. This may be accomplished by turning back the damper ninety degrees from its last position. The flange will then rest upon the back plate of the stove, in the rear ascending flue, being inclined backward at an angle of ninety degrees. The products of combustion will thus pass along the top sheet-flue, into the rear ascending flue, and thence, seeking the shortest passage to the exit-pipe, down this flue into the reservoir-chamber, through the opening G, when its direction will be changed upward to the exit-passage, thus heating the reservoir without at the same time heating the oven.

Thus it will be seen that, by a single damper, operated in a very simple manner, three distinct and separate draft-currents may be created: First, a direct draft to the exit-pipe, for the purpose of kindling the fire; second, a reverse draft, for the purpose of heating the oven without materially heating the reservoir; third, a direct draft, for the purpose of heating the reservoir without at the same time heating the oven.

Referring to the drawings hereto attached, Figures 1, 2, 3, and 4 represent an ordinary diving-flue cooking-stove provided with an incased water-reservoir located upon the exterior of the rear vertical wall, and showing the location and operation of my prismatic damper. Fig. 1 is a transverse vertical section of the stove. Fig. 2 is a central longitudinal vertical section taken through the line X X, showing the prismatic damper thrown forward one hundred and eighty degrees. Fig. 3 is a plan view, the position of the exit-pipe being shown by dotted lines. Fig. 4 is a perspective view of the back part of the stove with the top

plate and side omitted. Fig. 5 shows my prismatic damper, the base of which consists of a flange, the other two sides being open or in skeleton form.

In these figures, F' is the pipe-collar; P, the back plate; B' B', flue-strips in the rear flues; R, the upper aperture leading from the ascending flue into the reservoir-chamber; D', the prismatic damper; H' H', the reservoir-seat within the hot-air chamber; G, the lower aperture communicating between the middle ascending flue and the reservoir-chamber; A, the top sheet-flue; E, the reservoir-chamber; C', the middle ascending flue; Q Q, the two corner or descending flues; X X, an imaginary line run through the center of the stove in a longitudinal direction.

When the damper D' is thrown backward one hundred and eighty degrees from the position indicated in Fig. 2, the products of combustion will seek the most direct outlet, and, passing along the top sheet-flue A, will escape through the exit-pipe F'. This arrangement is desirable when kindling the fire, as it secures the most direct draft. When the damper is in the position shown in Fig. 2, the flange closes the passage between the top sheet-flue and the middle ascending flue, and the hot-air currents, after passing along the top flue A, will divide above the oven, pass down the corner flues Q Q, thence traversing the bottom of the oven, and, uniting, they will pass up the rear ascending flue C' to the exit-pipe F', a small portion, however, expanding into the reservoir-chamber E through the apertures G and R. By this means the oven is thoroughly heated, the reservoir being comparatively unaffected. When the damper is thrown backward ninety degrees from the position shown in Fig. 2, the hot-air currents, after traversing the top sheet-flue A, seeking the nearest escape, will pass through the two open sides of the damper into the middle ascending flue C'; and the flange extending across this flue, and cutting off their direct access to the escape-pipe, they will be forced down this flue into the reservoir-chamber E, through the aperture G, and thence changing their direction, will rise and escape to the exit-pipe F', through

the aperture R, thus securing the highly desirable result of heating the reservoir by direct draft, without at the same time heating the bottom of the oven.

By means of the damper K K, the apertures in the corner or descending flues Q Q are closed, and the following result is obtained: The hot-air currents, after having traversed the top sheet-flue A, will divide and plunge down the corner descending flues Q Q, and, after having heated the oven, will return up the ascending flue C', be forced into the reservoir-chamber E, through the aperture G, and thence pass out at the exit-pipe F'. By means of this arrangement of the dampers, the oven and reservoir are heated at the same time.

By leaving the compound damper N' in the position shown in Fig. 9, and throwing forward the damper K K, thus opening the apertures in the descending flues Q Q, the currents of hot air will pass from the top sheet-flue A into the corner flues Q Q, and from thence into the reservoir-chamber E, through the apertures in the corner flues Q Q, from whence the currents will change to an upward direction, and pass out through the aperture R to the exit-pipe F', thus heating the reservoir by direct draft, without at the same time heating the bottom of the oven.

What is hereby claimed is—

In combination with a diving-flue cook-stove having three flues, and an incased water-reservoir at the rear thereof, the ordinary rear end plate of the stove forming one side of such casing, and having apertures communicating between such reservoir-chamber and the rear vertical flues, the prismatic damper D' at the junction of the top sheet-flue with the middle ascending flue, the damper-rod being located directly in front of the pipe-collar, whereby three draft-currents are created, the one kindling the fire by direct draft, the other heating the reservoir by direct draft, and the third heating the oven by reverse draft, substantially in the manner and for the purposes herein described and set forth.

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