

RESERVOIR COOKING-STOVE.

Patented Feb. 29, 1876.

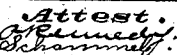
FIG. 6.



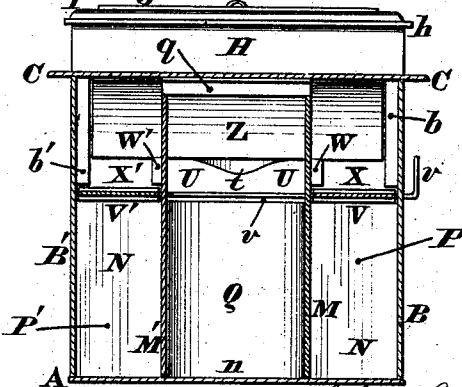
FIG. 2.



FIG.



A **1** **J** **3** **FIG. 5.**



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UNITED STATES PATENT OFFICE.

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ASSIGNORS TO CHAMBERLAIN & CO., OF SAME PLACE.

IMPROVEMENT IN RESERVOIR COOKING-STOVES.

Specification forming part of Letters Patent No. 174,064, dated February 29, 1876; application filed October 15, 1875.

To all whom it may concern :

Be it known that we, JOHN B. CROWLEY and ADDIS E. CHAMBERLAIN, residents of the city of Cincinnati, in the State of Ohio, have invented certain new and useful Improvements in Stoves, of which the following is a specification.

Our invention consists in applying a low-down reservoir to the rear of a cook-stove, in such a manner as to expose a large area of said reservoir to the action of the heat, and without, at the same time, unduly increasing either the length, height, or breadth of the stove. We accomplish this result by a peculiar arrangement of reservoir, flues, dampers, &c., the location and use of which will be herein-after more fully explained.

Figure 1 is a perspective view of a cook-stove provided with our improvements, the front end of the stove being removed, and the dampers being set so as to divert the products of combustion down the diving-flues, and thence around the oven. Fig. 2 is a vertical section of the same at the line 1 1. Fig. 3 is a vertical section at the line 2 2. Fig. 4 is another vertical section in the same plane, but showing the dampers in a horizontal position, and both lids of the reservoir opened. Fig. 5 is a transverse section at the line 3 3. Fig. 6 is a perspective view, showing the reservoir detached from the stove.

A represents the bottom, B B' the sides, and C the top plate, of an ordinary cook-stove. D is the top plate, E the back plate, and F the bottom plate, of an oven, G, which latter is provided with doors g g'. Cast with or otherwise attached to the top plate C is a rectangular box, H, which projects a suitable distance above said plate, and is furnished with a flange, h, to which latter is hinged, at i, a frame, I, adapted to fit snugly down upon said flange. Hinged to this frame, at j, is a lid J, having a handle, j', wherewith it may be conveniently opened as occasion may require. The frame I, together with its accompanying lid J, serves to conceal the reservoir K, whose marginal flange k rests upon the rim h, and immediately under said frame, as shown in Figs. 2 and 3. This reservoir is furnished with an annular and horizontal ledge, L, which rests

upon that portion of the top plate C which extends inwardly from the box H. The walls of said reservoir are approximately vertical except the front portion below the ledge L, which portion is concaved, as at Z, so as to fit as snugly as possible upon the curved extremities m m' of two vertical flue-strips, M and M'. These strips are located between the back plate E of oven G and the front plate N of hot-closet O, so as to form two side or diving flues, P P', and an intermediate or ascending flue, Q. q is a plate, which acts as a barrier to prevent the products of combustion entering the upper end of ascending flue Q. This barrier extends from the top of oven G to the under side of plate C, and it reaches completely across from one strip, M, to the other strip, M'.

The diving-flues P P' communicate at the bottom of the stove with their respective horizontal flues p p', while an appropriate channel, R, is provided to conduct the products of combustion rearwardly to the uptake Q. The front plate N of closet Q is concaved at n, so as to increase the area of the central flue Q. S is the top plate of said hot-closet, and T is the back plate of the same, which latter constitutes the extreme rear member of the stove.

Located between the sides B B', top plate S, and end plate T, is a chamber, U, which allows the products of combustion to circulate completely around the ends and back of the reservoir K, and also under the bottom of the same when the dampers V V' are properly set. These dampers are attached to a common rock-shaft, v, and are located about on a level with the plate S, the object of said dampers being to open or close communication with the upper or receiving ends of diving flues P P'. v' are stops on the flue-strips M M' for the purpose of maintaining the dampers in their proper horizontal position.

Projecting outwardly from the strips M M' are wings W W', that assist in supporting the reservoir K; and said lateral wings serve as stops to maintain the dampers V V' in their open or erect position. Furthermore, these wings, in connection with vertical flanges b b' of side plates B B', constitute passages X X', which allow the flame and smoke to enter the

chamber U and circulate around the reservoir.

The rear plate T is bulged outwardly at *t*, thereby forming an outlet from chamber U to neck Y, which latter projects from the extension *c* of top plate C.

To illustrate the operation of the stove and its accessories, we will suppose that it is desired to arrange the apparatus for baking, to accomplish which result the dampers V V' are first turned up vertically, as shown in Fig. 3, thereby effectually closing the openings X X' of chamber U. The products of combustion, as they are drawn rearwardly between the plates C and D, are arrested by the barrier *g*, which prevents the flame and smoke descending the central flue Q, and the products of combustion are thus divided into two separate and distinct currents, one of which is deflected to the right and the other to the left of said barrier. The current passing to the right of this plate enters the side flue P, while the current that proceeds to the left is drawn into the other flue, P'. These two currents then descend their respective flues, as previously described, and after traversing the horizontal passages *p p'* they enter the central channel R at or near the front of the stove. The products of combustion then traverse said central channel rearwardly, and ascend the flue Q, and after entering the chamber U they escape through the exit *t T*, as indicated by arrows in Fig. 2.

During this circuitous passage of the products of combustion through the stove, the flames first strike that portion of the concave front Z of the reservoir which is exposed between the plates B B' and the flue-strips M M', and as soon as the flame and smoke escape from the uptake Q they pass under the central portion of the bottom of the reservoir K.

It will thus be seen that, even when the stove is employed for baking, a considerable amount of heat is brought to bear against the various surfaces of the reservoir, and the result is that the water contained therein soon becomes hot enough for all culinary purposes; but when the stove is not to be used for baking purposes, the dampers V V' are turned down to the horizontal position shown in Figs. 4 and 5, which act opens the passages X and X', thereby allowing the fire to pass through said passages directly into the chamber U, and thence out at the exit *t T*. As the

areas of the reservoir that are exposed between the plates B M and B' M', are about equal to the surface of the reservoir located between the flue-strips M M', it will be understood that said reservoir is nearly equally surrounded with heat, whether the stove is employed for baking or not. It will also be observed that the ledge L rests snugly upon the plate C, and by this arrangement there is no chance for the heat to escape upwardly through the box H.

Another advantage peculiar to my arrangement is, that although the reservoir is comparatively low down and readily accessible, yet there is no undue lengthening of the stove, while at the same time the exit Y is in line with the top plate C.

Whenever it is desired to remove the reservoir, either for inspection or repair, the lids I J are opened, as seen in Fig. 4, after which the receptacle K can be readily lifted out of the box H.

What we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the reservoir K, located partly above and partly below the top plate C of a cook-stove, we claim the box H, flues P P' Q q, passages X X', chamber U, exit Y, and extended flue-strips M M', the latter being curved, respectively, at *m m'*, to fit the concave front Z of said reservoir, as and for the purpose specified.

2. We claim the flanges *b b'* and wings W W', when located as described, so as to form, in conjunction with the reservoir K, the rear upper portions of diving-flues P P', when the dampers V V' are elevated, as set forth.

3. In combination with the reservoir K of a cook-stove, we claim the flues P P' Q q, passages X X', chamber U, and extended flue-strips M N, the latter being curved, respectively, at *m m'*, as and for the purposes set forth.

4. We claim the central ascending flue Q, formed, as described, by the combination of the concave front Z of the reservoir, flue-strips M N, plates E and *g*, in combination with flue U and exit-pipe T, placed behind the reservoir, substantially as and for the purposes specified.

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