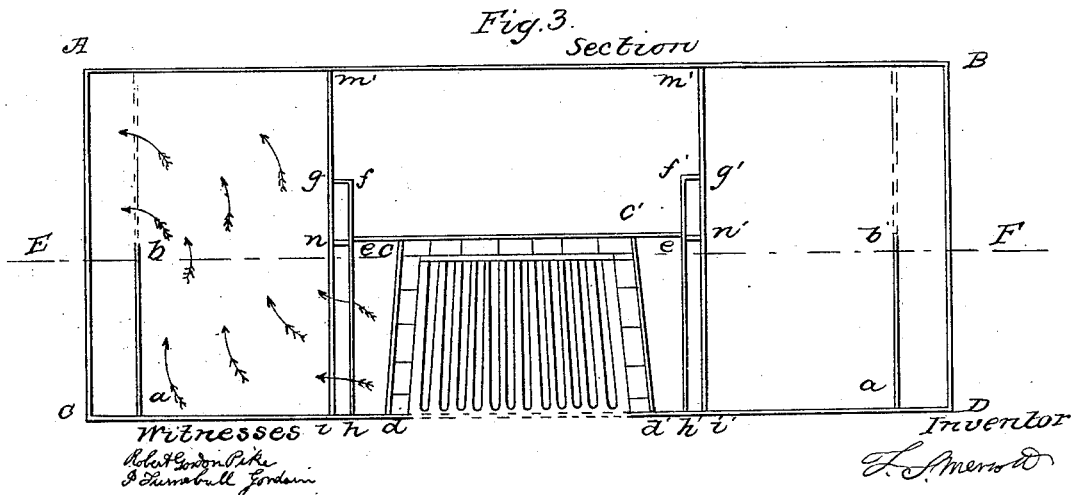
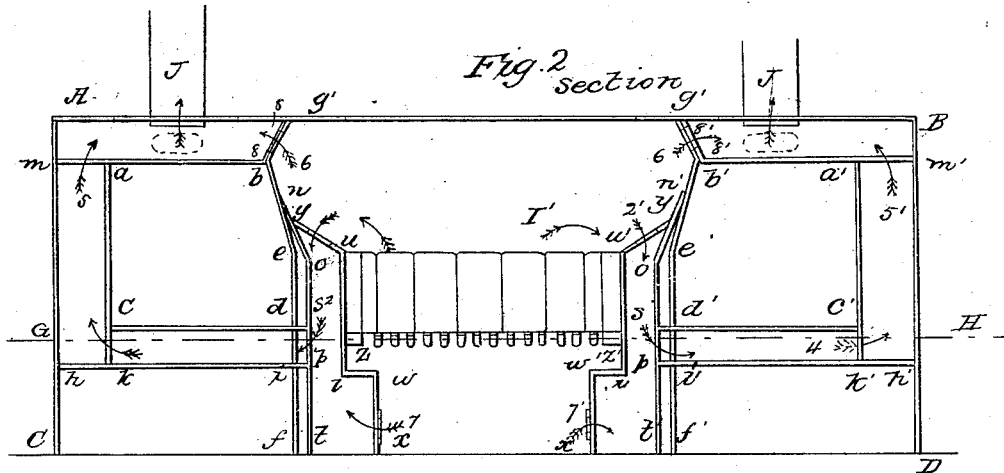
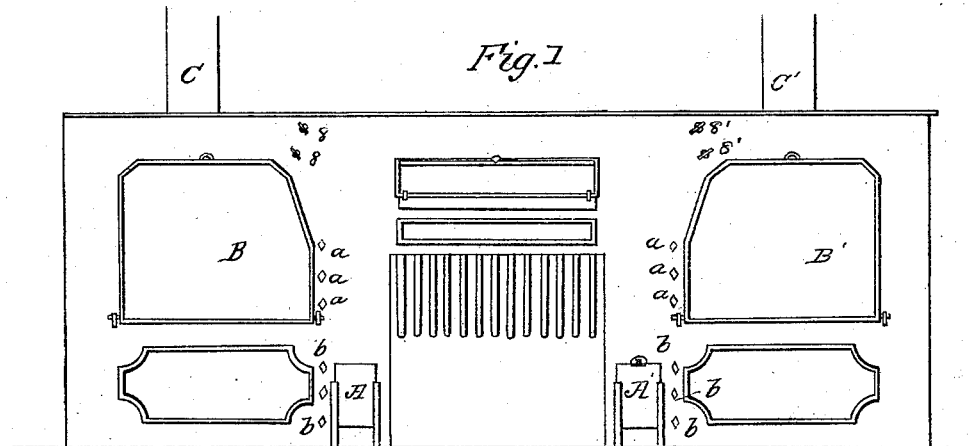


F. S. MERRITT.
Cooking Range.

No. 6,264.

Patented April 3, 1849.



UNITED STATES PATENT OFFICE.

FREDERICK S. MERRITT, OF NEW YORK, N. Y.

COOKING-RANGE.

Specification of Letters Patent No. 6,264, dated April 3, 1849.

To all whom it may concern:

Be it known that I, FREDERICK S. MERRITT, of the city, county, and State of New York, and a citizen of the United States, have invented and made a new and useful Improvement in the Construction of Cooking-Ranges, and the following is a full and exact description of my said improvement.

My range is constructed, as ranges commonly are at the present day, of iron castings or plates. My common sized range is about three feet, nine inches long, twenty inches high, and twenty two inches from front to back. There are two ovens running through from front to back, the doors of which are seen at B and B' Figure I, which is a front elevation of the range. Between the ovens is the fire-chamber which runs from the front half way back, the bottom of which is in the same plane with bottoms of the ovens, or a very little below.

Fig. II represents a section of the range, formed by a plane, running parallel with the front plate of the range and cutting across both ovens and the fire-chamber through the line E F Fig. III. In Fig. II. A B is the top, C D is the floor, and A C—B D are the sides of the range. *a, b, e, d, c—**a', b', e', d', c'* are the sides of the ovens; the sides *b d* and *b' d'* being bent at a small angle as represented at *e* and *e'*; these two sides are extended vertically down to the floor of the range, to *f* and *f'*:—they are also extended up to the top of the range, to *g* and *g'*, being bent at a small angle as represented at *b* and *b'*:—so that these two plates *g, b, p, d, i, f* and *g', b', e', d', i', f'* divide the range into three sections, which extend from the front to the back of the range. The distance between these two plates, that is to say between *f* and *f'*, is about 20 inches. *h i* and *h' i'* (Fig. II) are plates running horizontally from front to back, and are about seven inches above the floor of the range: the bottom plate of the oven *c d* runs parallel with *h i* and is about two inches above it. The side plate *a c* is parallel with the side A C and about two inches from it—the top plate *a b* is parallel with the top plate of the range and is about two and a half inches below it: thus a chamber is formed around these three sides of the oven (that part above *a b* is called "the top air-chamber"; that at the side *a c* "the side air-chamber"; and that below *c d* "the bottom air-chamber";) these chambers, of course, extend through from

the front to the back of the range. The other oven is similarly arranged.

Fig. III represents a section of the range, formed by a plane passing horizontally under the bottoms of the ovens, and through the bottom of the fire-chamber through the line G H Fig. II. In this figure (Fig. III) A B is the back, C D the front, and A C, B D the sides, of the range.

In Fig. II, *c k* is a partition plate, formed by extending the side of the oven, *a c*, vertically down to the plate *h i* below. It runs from the front of the range only half way back, as may be seen from its horizontal section *a b* in Fig. III, so that it separates, for that distance, the side air-chamber from the bottom air-chamber; *c' k'* (Fig. II) is a similar partition in the other oven, and its horizontal section is seen at *a' b'* in Fig. III. The unshaded lines, *a m*, (Fig. II) represent another partition plate formed by extending the top plate of the oven *a b*, horizontally, to the side plate of the range A C. It runs from the back of the range only half way to the front, so that it separates, for that distance, the top air-chamber from the side air-chamber. There is a similar partition plate on the other oven as represented by the unshaded lines *a' m'* (These lines *a m* and *a' m'* are unshaded because the plates, extending only half way to the front, are not cut by the plane forming the section here represented). Their use will hereinafter appear.

It will be remembered that the side plate *b, e, d*, is extended down to the floor of the range, to *f*. Parallel with this plate, and about one fourth of an inch from it, is a plate, (*n, o, s, p, t*, Fig. II,) which extends from the front of the range three fourths the way back, and from the floor of the range up nearly to the top of the oven, the plate being bent near the top edge so as to lap on to the side of the oven, as represented. A chamber is thus formed, which is closed at the back by an iron plate, (a section of which plate is seen at *g f* Fig. III). Across this chamber, a passage way is cut, leading into, and directly opposite, the bottom air-chamber, a vertical section of which is seen at *d s—i p* in Fig. II. It extends from the front of the range half way back, as may be seen from its horizontal section *n, e, i, h* in Fig. III; and thus a syphon shape is given to the chamber, of which *n e d s o* Fig. II is a section of the upper arm, and *i f t p* is a

section of the lower arm (the passage way being between them) and *g, f, e, n* in Fig. III is a horizontal section of that portion of the chamber which lies behind the passage way. There is a similar arrangement at the other oven, at *n' o' s' p' t'—n' e' d' i' f'* Fig. II. The use of these chambers, called "siphon-chambers," will hereinafter appear.

In Fig. II, *u z z' u'* is a vertical section of the fire-chamber. The chamber is wider in front than at the back, as may be seen from its horizontal section at *c d d' c'* Fig. III. Between the side of the fire chamber *u v*, and the upper arm of the syphon chamber, *o s* Fig. II, a space is left for a flue which extends, from the front of the range, as far back as the fire chamber extends. The space below this flue, between *p t* and the plate *v w x*, extends back the same distance and serves as an "ash-pit," which will be more fully explained hereafter. Both the flue and the ash-pit are closed at the back by an iron plate, a section of which plate is at *e, c*, Fig. III. The flue is about a fourth of an inch wide in front, and two or three inches wide at the back, owing to the wedge shape of the fire chamber, as may be seen from a horizontal section of the flue at *e c h d* Fig. III. The top of this flue is covered by an iron grating, (a section of which is seen at *y u* Fig. II,) the lower edge of which rests upon the side of the fire-chamber, and the upper edge upon the syphon-chamber, at an angle of about 45°. There is a similar flue and ash-pit at the other side, between *u' v' w' x'* and *y' o' s' p' t'* in Fig. II, covered by a similar grating *u' y'*. The object of this grating is to prevent the fuel from dropping over the side of the fire-chamber into the flue below the grating.

The draft or flame passes from the fire-chamber, through the grating, down the flue, into the bottom air-chamber, in the direction of the arrows 1, 2, 3, (Fig. II): as it passes into the bottom air-chamber, it is turned by the partition, *e k*, (Fig. II) so as to pass along under the oven, toward the back and thence into the side air-chamber in the direction of arrow 4. (The arrows in Fig. III indicate the course of the draft through the bottom air-chamber.) As it passes into the side air-chamber it is met by the partition *m a* (Fig. II) and turned so as to come along the side of the oven to the front and thence sweeps up into the top air-chamber in the direction of arrow 5; when it is turned by the wall *b g*, so as to pass over the top of the oven to the funnel *J*, which stands over the oven and close to the back of the range. It may be proper however, here to remark that the funnel, instead of coming out the top of the range as here represented, may come out the back at the point indicated by

the dotted circles below *J*, Fig. II, without affecting the general principles of my arrangement. This draft which serves to bring the heat upon the four sides of the oven is called "the serpentine draft," and there is a like draft around the other oven, as indicated by the arrows 1' 2' 3' 4' 5' (Fig. II) and now the use of the syphon-chamber will be understood: The only opening into it is through several small apertures (I usually have six) in the front plate of the range, one above another, three opposite the lower arm and three opposite the upper arm, as represented by the diamond shaped dots *a a a—b b b* Fig. I: The upper arm being near the fire chamber, the air within becomes heated and rushes out through the apertures *a a a*, while the cold air rushes in through *b b b*, to supply its place, thus keeping up a constant circulation of cold air through the syphon-chamber; the effect of which is to moderate the heat which would otherwise be too great upon that side of the oven which lies nearest the fire.

The ash-pit is of very important use, as a receptacle for the fine ashes and other light substances, brought down by the draft from above; thereby preventing the flue and passage-way leading to the bottom air-chamber from being choked up.

It will be remembered that the side of the oven, *b d* (Fig. II) is continued up to the top of the range; so as to form the side of the top air-chamber, of which *b g* is a section: along this side is a row of apertures, from front to back, opening into the top air-chamber: these apertures are closed and opened by means of two sliding dampers, one extending from the front to a point half way back, and called the "front-damper" and the other extending from that point to the back, called the "back-damper"; a section of the front-damper is seen at 8, 8, Fig. II. These two dampers are made to slide back and forth, each by means of an iron wire attached to its middle—the handles of both are seen at 8—8 in Fig. I. When using the oven, both dampers are closed. When the oven is not in use, by opening the front, and closing the back, damper, the draft will pass directly from the fire into the top air-chamber (as indicated by arrow 6) and sweep over the top of the oven to the funnel: a similar result is produced by opening both dampers. There is a similar arrangement of dampers on the other side, a section of which is seen at 8'—8' Fig. II.

In the side of the ash-pit *w x* (Fig. II) there is a sliding damper (a section of which is seen at arrow 7) the use of which is, by opening it more or less, to admit a portion of cold air to mingle with the draft, when it comes down from above on its way to the bottom air-chamber, when the draft is too hot for the oven: it is also useful, when wide

open, in drawing in much of the light ashes, which would otherwise fly into the room, when clearing out the grate. There is a similar damper in the other ash-pit a section 5 of which is at arrow 7', Fig. II. Each ash pit has a large opening closed by a sliding door in the front plate of the range (A A', Fig. I) for removing the ashes that accumulates.

10 The top plate of the range has the usual arrangements for large and small boilers and other cooking utensils, varying more or less to suit different wants.

The fire-chamber is made in the usual way, 15 being a little higher at the back than the front: and the back wall is extended down to the floor of the range. In the space in the rear of the fire-chamber (a section of which is seen at *e f q m m' g' f' e'* Fig. 20 III) convenient arrangements may be made for heating water for bathing as in other ranges.

The advantages of this arrangement are obvious: It possesses all the usual conveniences of other ranges for cooking &c, consuming no more fuel, if it does as much. 25 Very little of the heat is lost, particularly in baking, for which purpose it is unequaled; the serpentine draft distributes the heat

upon the four sides of the oven in such a 30 way that the baking is done in a most satisfactory and expeditious manner. Another great advantage is that by opening and closing the dampers, the draft may be turned, 35 and the heat concentrated upon almost any point at pleasure.

Having thus described my cooking range I proceed to state what I claim as my improvement and for which I desire Letters 40 Patent.

1. I claim the syphon shape of the air-chamber for the purpose of moderating the heat acting on the side of the oven nearest the fire-chamber, substantially as above set 45 forth.

2. I claim the special arrangement and combination made by me of the ovens, fire-chamber, draft, ash-pit and syphon-chamber, as herein set forth. 45

In testimony whereof I, the said FRED- 50 ERICK S. MERRITT hereto subscribe my name in the presence of the witnesses whose names are hereto subscribed, on the twenty ninth day of January A. D. 1849.

F. S. MERRITT.

Witnesses:

ROBERT GORDON PIKE,
J. THNBULL GOODWIN.