2 Sheets—Sheet 1.

M. C. HULL.

Cooking Range.

No. 50,933. Patented Nov. 14, 1865.

Fig. 3,

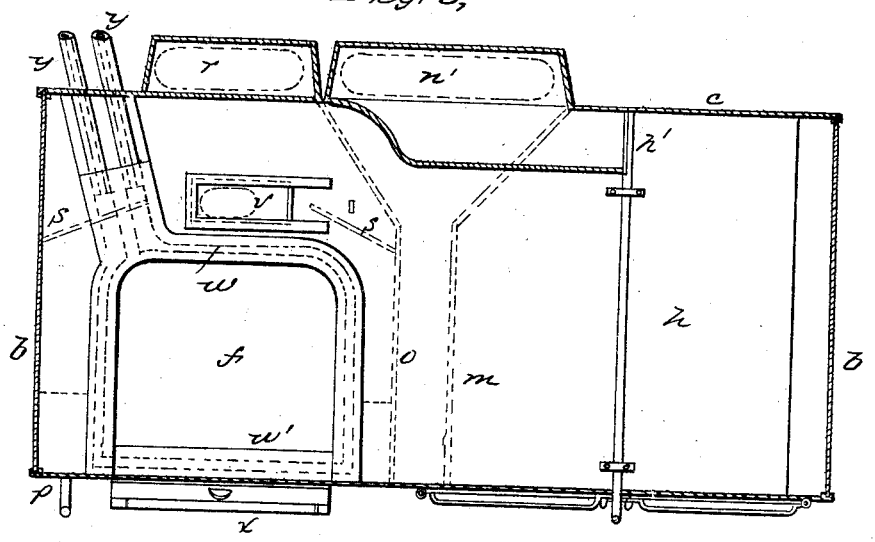
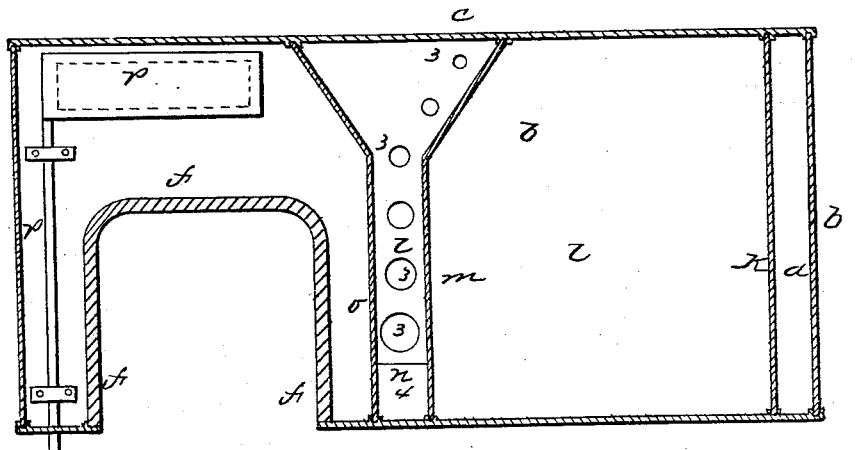


Fig. 4,



Witnesses:
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Thos. Geo. Harold

Inventor:
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2 Sheets—Sheet 2.

M. C. HULL.

Cooking Range.

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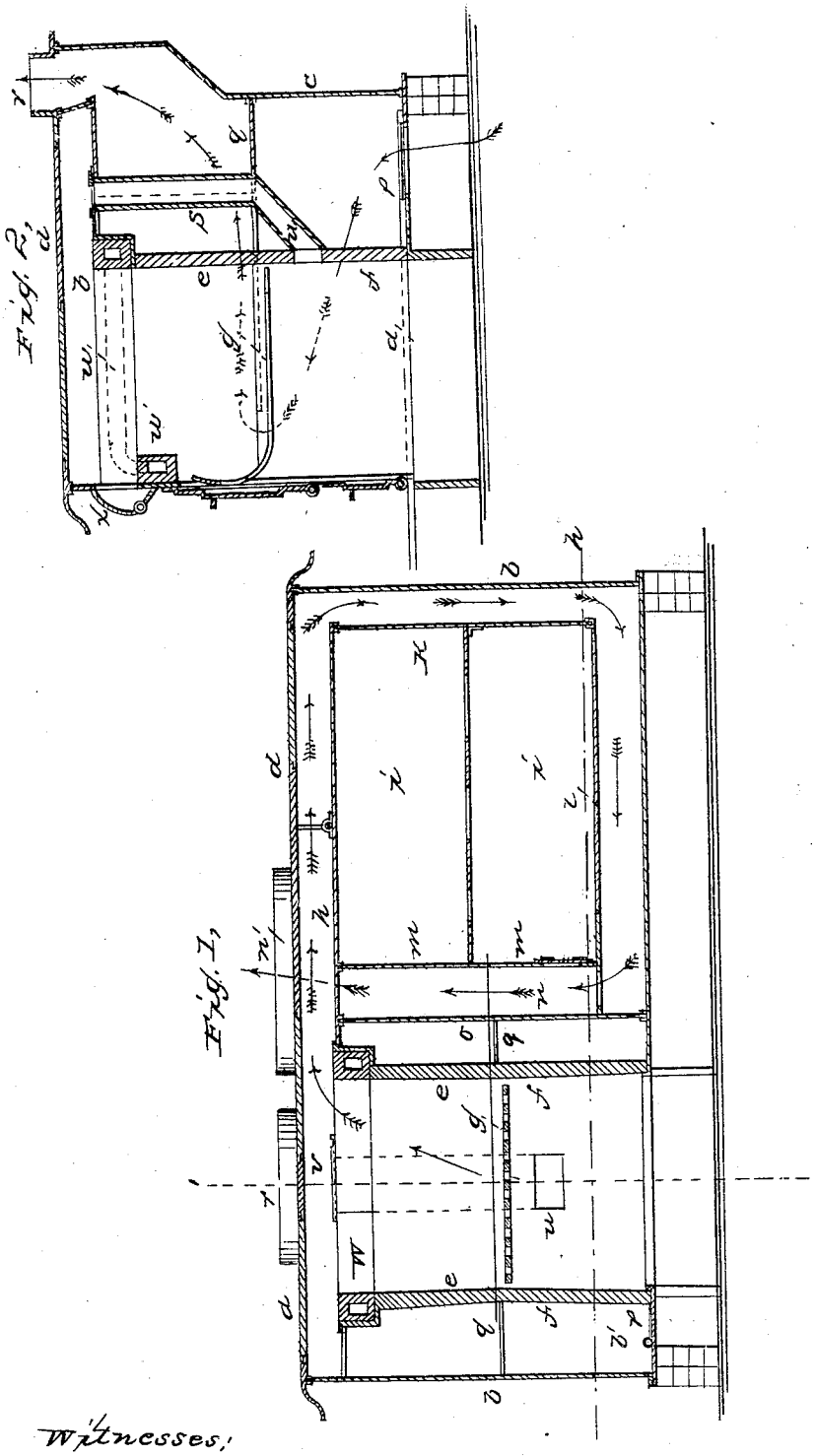

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UNITED STATES PATENT OFFICE.

MAURICE C. HULL, OF NEW YORK, N. Y.

IMPROVEMENT IN COOKING-RANGES.

Specification forming part of Letters Patent No. **50,933**, dated November 14, 1865.

To all whom it may concern:

Be it known that I, MAURICE C. HULL, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Cooking-Ranges; and I do hereby declare the following to be a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making a part of this specification, wherein—

Figure 1 is a vertical section longitudinally of the range. Fig. 2 is a transverse section through the fire-pot at the line 1 1. Fig. 3 is a plan with the top plate of the range removed, and Fig. 4 is a sectional plan at the line 2 2 of Fig. 1.

Similar marks of reference denote the same parts.

My improvement relates to that clase of cooking-ranges that have a water-back for heating water, and also have an air-space through which air is caused to circulate and pass away by a pipe to heat a room or rooms above.

My invention relates to an arrangement of deflecting-plates to cause said circulating air to pass in contact with the fire-pot; also, to an arrangement of flues and openings for causing the heat to act more uniformly around the oven; and, also, to a mode of constructing the water back or heater so that it may surround the fire and not interfere with the introduction of fuel through the feeding door or slide.

In the drawings, *a* is the bottom plate of the range, supported in any usual or convenient manner, so that an air-space is left beneath it. *b b* are the side plates, *c* the back plate, and *d* the top plate, of the range, which latter plate is to be formed with openings and covers in any usual or desired manner.

The fire-pot *e* is represented of metal. It might, however, be lined with soapstone or fire-brick.

f is the casing below the fire-pot, forming the ash-pit, and *g* is the grate. *h* is the top or oven plate setting around the upper edges of the fire-pot *e* and resting upon the side plates, *k m*, of the oven *i*.

l is the bottom plate of the oven, that extends to the plate *o*, which separates the flues for the escape of products of combustion from the space for heated atmosphere. The flues formed over and at the side and bottom of the oven, as seen in Fig. 1, open into the flue *n* between the plates *m* and *o*, and said flue *n* is enlarged toward the back, as seen in Fig. 4, and terminates at the ring *n'* for the stove-pipe. If this arrangement of flues only was resorted to the largest portion of the draft would pass under the back part of the oven *i*, in consequence of taking the nearest and most easy passage to the escape *n'*. In order, therefore, to cause the draft to pass toward the front of the oven, I extend the bottom plate, *l*, across said flue *n*, and form holes in it decreasing in size toward the back of the range, as seen at 3 in Fig. 4, and I leave a large opening in the plate, or discontinue the plate toward the front part of said flue *n*, as seen at 4, in order that the larger portion of the heat may be directed under the front portion of the oven, as that is the most likely to be the coolest part of the oven. Thereby the heat is equalized. If the side oven-plate, *m*, was extended below the bottom of the oven and formed with openings like those at 3 and 4 the effect would be the same as before mentioned. I provide a flue-pipe, *u*, passing through the casing *f* of the ash-pit and upward, terminating at an opening through the plate *h*, over which is a damper, *v*, so that the draft may be checked to prevent the fire burning too rapidly by opening the damper *v;* or if this damper is open when the fire is rattled the dust will be carried over into the flues of the stove, instead of coming into the room.

In the bottom plate, *a*, is an opening with a damper, *p*, and rod *p'*, by which more or less air can be allowed to pass up from below and into the space around the fire-pot and ash-pit, which space is separated from the flues *u* of the range by the plate *o*. I introduce a plate, *q*, that sets around the fire-pot and extends toward the front of the range, leaving, however, a sufficient opening for the air to pass from below said plate *q*, as indicated by the arrows and dotted lines in Fig. 2.

Deflecting-plates are introduced above the plate *q*, as seen by dotted lines in Fig. 3, so as to cause the circulating atmosphere to pass more closely in contact with the back of the fire-pot. By this arrangement I cause the air to circulate around on each side of the ash-pit casing *f;* thence around the sides and back

of the fire-pot, and from there it passes away, by a pipe at *r*, to the room above. Thus the circulating atmosphere is heated or warmed by contact with the highly-heated parts of the range, and the oven is not cooled on account of the flue *n* intervening between the oven and air-space, and the circulating atmosphere does not cool the products of combustion that pass away beneath the pots, kettles, or other articles on top of the range.

Water backs or heaters have been made to pass around the upper part of the fire; but they have prevented the use of a chute or feeding-slide in the front of the range below the top plate. I therefore construct my water-heater *w* with a crook or depression, formed by the front portion being lower down than the side portions, as seen at *w'*, Figs. 2 and 3, which depression allows access to the fire through the chute or feeding-slide *x* in the front of the range, and by making this portion of the water back or heater in the manner shown the upper part of the swinging grate and the front of the range below this chute *x* are protected, while in ranges in which the water-back is not so made the front and upper parts of the grate are burned out, in consequence of the intense heat at this point.

y and *y'* are the circulating-pipes for supplying water to the heater *w w'*, and *h'* is a damper that may be opened when kindling the fire to give a direct passage for smoke, &c., to the pipe *n'*.

The range might be made double, with an oven on both sides of the fire, and with two smoke-flues, *n'*, if desired.

What I claim, and desire to secure by Letters Patent, is—

1. The plate *q*, introduced in the air-space around the ash-pit and fire-pot, in combination with the deflecting-plates *s s*, to cause the air to circulate through said space, in the manner and for the purposes set forth.

2. The openings 3 and 4 at the bottom of and in combination with the flue *n*, substantially as and for the purposes set forth.

3. Forming the water-heater lower at the front portion, as seen at *w'*, in combination with the feeding-chute *x*, as and for the purposes specified.

4. The flue-pipe *u*, passing from the ash-pit up through the hot-air space and plate *h*, in combination with the regulating-damper *v* at the upper end, for the purposes and as set forth.

5. The ascending flue *n*, between the oven *i* and the fire, receiving the products of combustion from the flue at the bottom of the oven, and conveying the same away by the escape *n'* at the back, as set forth.

6. The flue *n*, in combination with the oven *i* and air-space *o* around the fire-pot, whereby the air to be heated is prevented from cooling the oven, as set forth.

In witness whereof I have hereunto set my signature this 14th day of August, 1865.

M. C. HULL.

Witnesses:
LEMUEL W. SERRELL,
J. E. SERRELL, Jr.