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A. R. HUBBARD & R. FLAY.

COOKING RANGE.

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2 SHEETS—SHEET 1.

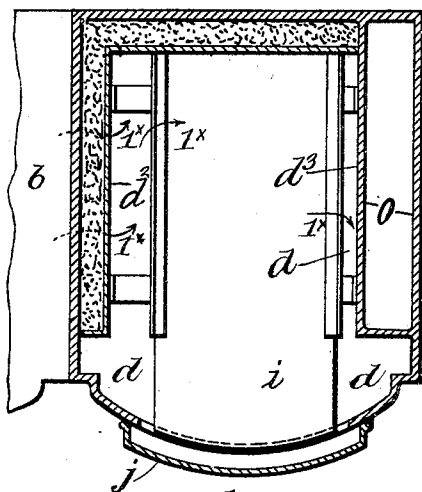


Fig. 2

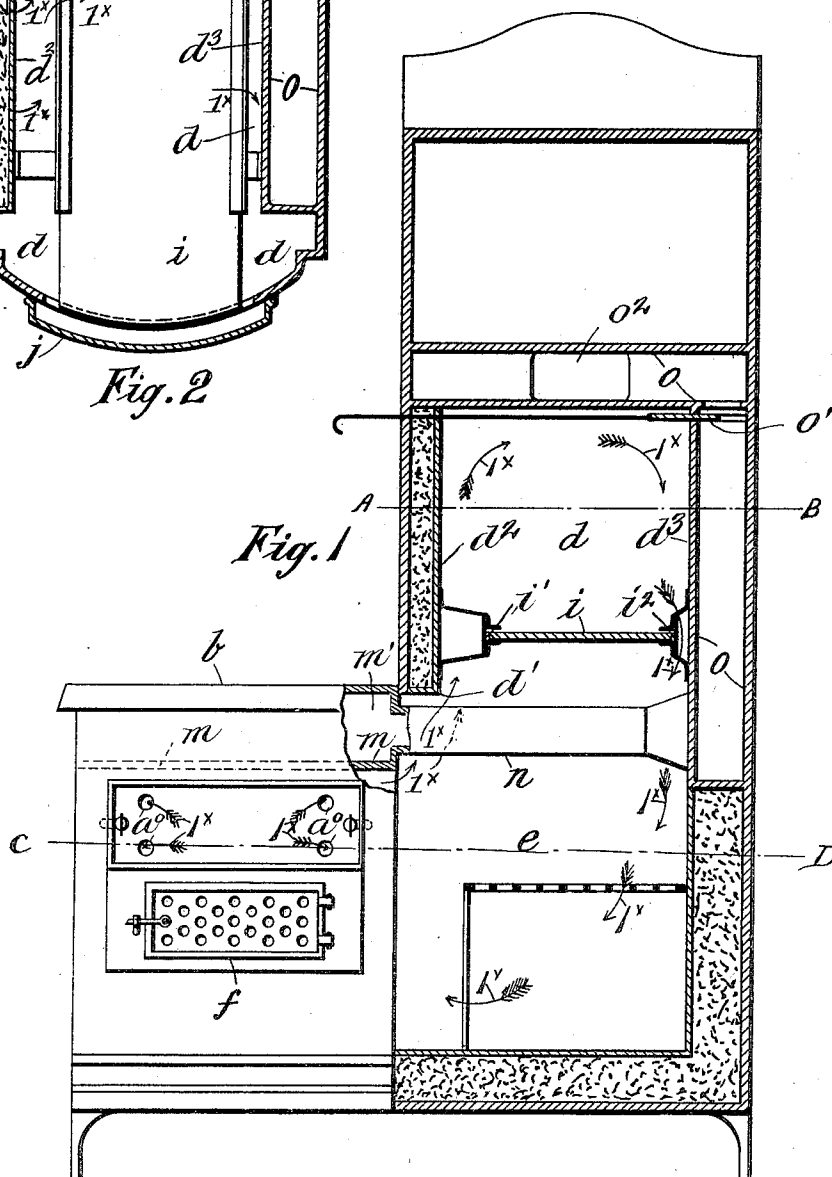


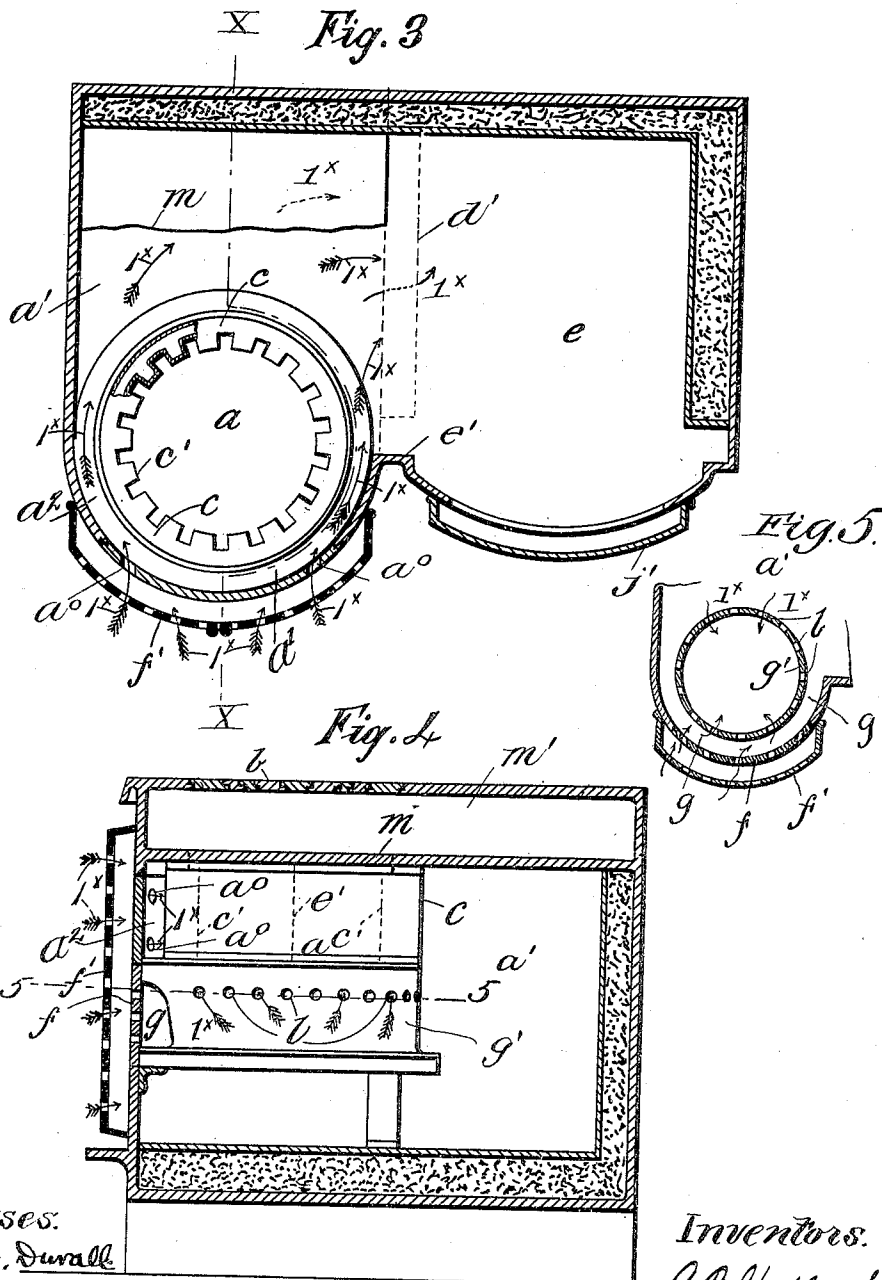
Fig. 1

Witnesses.

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UNITED STATES PATENT OFFICE.

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COOKING-RANGE.

No. 812,746.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ARTHUR ROBERT HUBBARD, residing at 181 Drummond road, Bermondsey, in the county of Surrey, and ROBERT FLAY, residing at 73 Gloucester street, in the county of Middlesex, England, subjects of the King of Great Britain, have invented a new and useful Improvement in Cooking-Ranges, of which the following is a specification.

This invention relates to improvements in cooking-ranges, and is particularly designed for use in connection with that class of ranges wherein two or more ovens are employed; and the principal object of the invention is to provide means whereby incoming air, irrespective of the fresh air conveyed to the fire-pot, is led around the fire-pot into a heating-chamber adjacent the fire, whereby it is heated to a high degree and in its heated state conveyed to the ovens for cooking purposes, and thence back again to the fire-pot.

To more fully understand the invention, reference is had to the accompanying drawings, illustrating a practical embodiment of the same, in which—

Figure 1 is a vertical section through the ovens, the portion of the range containing the fire-pot and a portion of the horizontal outlet-flue being shown in front elevation with the perforated front screen-plate omitted for clearness of illustration. Fig. 2 is a horizontal section on the line A B of Fig. 1. Fig. 3 is a horizontal section on the line C D of Fig. 1 with the front screen-plate shown in position and showing a portion of the boiler in section and also showing a portion of the dividing-plate *m* with one of the side walls of the upper oven indicated in dotted lines. Fig. 4 is a vertical section on the line X X of Fig. 3, showing the boiler and ash-pit in elevation; and Fig. 5 is a horizontal sectional view, on a smaller scale, taken on the line 5 5 of Fig. 4.

In the drawings the general position of the fire-pot is indicated at *a b*, designating the top or hot plate of the range, and *c* an annular boiler disposed above the usual grate, said boiler comprising an outer cylindrical wall spaced from an inner corrugated wall *c'*.

d is the upper oven, disposed at one side of the range and above the lower oven *e*, the two ovens being separated by a divisional or sliding plate *i*, which may be withdrawn when the door *j*, Fig. 2, is open.

j', Fig. 3, designates the door of the lower oven. The front of the oven and also the part of the range in front of the fire-pot and boiler is more or less of a curved or elliptical conformation, as shown in Figs. 2 and 3, *e'* designating a lateral web joining the front wall of the oven with the front wall of the range proper.

f designates a perforated door in the range forming a means for introducing fresh air to the chamber *g* below the grate.

g' designates a hollow cylindrical casting supported within the chamber *g* and forming a protected air-space below the fire.

f' in Figs. 3 and 4 designates a perforated front or screen-plate which may or may not be employed, as desired.

a° represents perforations in the front of the stove for introducing fresh air to the chamber *a'*, said chamber comprising the area of the range adjacent the fireplace and the boiler above it, this chamber *a'* at its forward end comprising the restricted semicylindrical space *a²* disposed at the front of the range.

l designates a plurality of perforations in the casting *g'* in the ash-pit, forming a means of communication between the lower oven *e* and the space below the grate.

m designates the usual dividing-plate, extending laterally adjacent the top of the fire-pot and forming a chamber *m'* with the top or hot plate *b*. This chamber *m'* receives the hot gases or products of combustion and conveys them by means of the flues *n* to the flue *o*, controlled by a suitable damper *o'*, thence to the chimney by means of the flue *o²*.

In operation it will be seen that fresh air is admitted first through the perforated plate *f'* when employed, thence through the perforations of the door *f* to the space or chamber *g* beneath the grate, thence through the fuel, the heated gases and products of combustion passing into the chamber *m'* through the flues *n* and out of the chimney, as before described, the passage of the heated gases through the flues *n* assisting in heating the ovens by the direct radiation of the heat from the hot flues. At the same time fresh air is drawn through the apertures *a°* into the semicylindrical restricted space *a²*, thence rearwardly to the heated area or chamber *a'*, thence laterally toward the ovens, thence passing beneath the lower edge *d'* of the inner side wall *d²* of the

upper oven, thence ascending upwardly substantially along the side wall d^2 , (between the inner edge i' of the plate i and the side wall d^2), displacing the cooler heated air in the oven, which passing downwardly substantially along the outer wall d^3 of the upper oven between the edge i^2 of the plate i and the outer wall d^3 into the lower oven e and passing through the lower oven is finally conveyed to the air-space below the grate through the apertures l in casting g' . The direction of this incoming and heated air is indicated by the arrows l^x . This particular circulation of the heated air is caused by the well-known principle that within a chamber closed at the top incoming heated air will ascend and displace the cooler air in said chamber, and consequently the incoming air which has been highly heated by its passage through the restricted space a^2 and the heating-chamber a' will when leaving the chamber a' ascend, as heretofore described, into the oven d , displacing the cooler air therein through the space formed between the outer edge of the plate i and the outer wall d^3 , as heretofore described, this space being the only opening for egress.

Having thus described the invention and the manner of its operation, what we claim is—

1. A cooking-range provided with a fire-pot, a heating-chamber adjacent thereto, and

a plurality of superposed ovens communicating with said heating-chamber, in combination with means for introducing fresh air around said fire-pot to said heating-chamber for highly heating said air and circulating same through said ovens, and means for conveying said air after its passage through said ovens to the interior of the fire-pot, substantially as described.

2. A cooking-range provided with a fire-pot, a heating-chamber adjacent thereto, and a pair of superposed ovens communicating with each other and with said heating-chamber, in combination with a flue, passing between said ovens for carrying off the heated gases and products of combustion, a plate within the upper of said ovens having its side edges spaced from the side walls thereof, means for introducing fresh air around said fire-pot to said heating-chamber for highly heating said air and causing it to circulate through said ovens, and means for conveying said air after circulation through said ovens to the interior of the fire-pot, substantially as described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

ARTHUR ROBERT HUBBARD.
ROBERT FLAY.

Witnesses:

ARTHUR E. EDWARDS,
A. N. FAREWEK.