

B. GILES.
Cooking Apparatus.

No. 151,871.

Patented June 9, 1874.

Fig. 2.

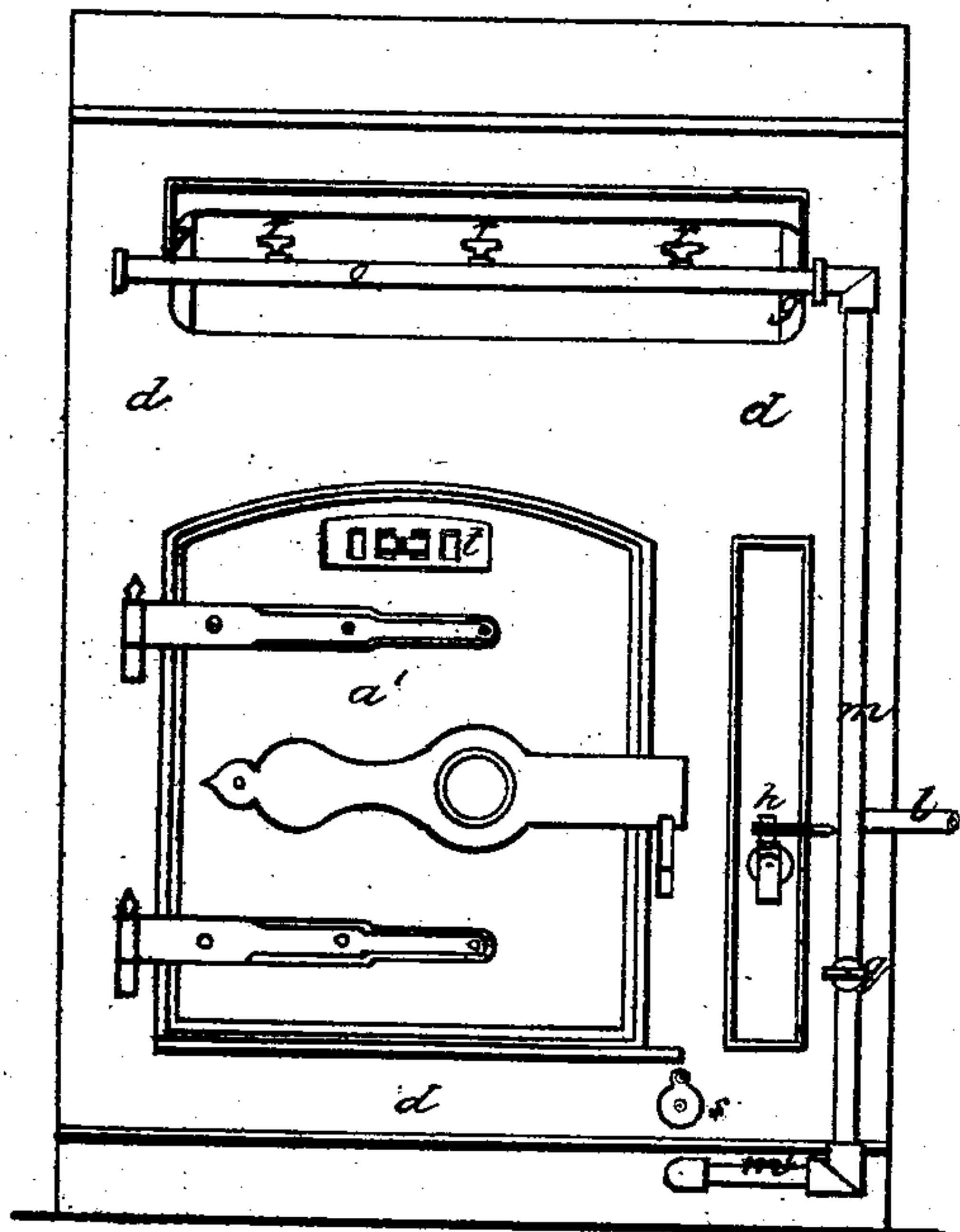


Fig. 3.

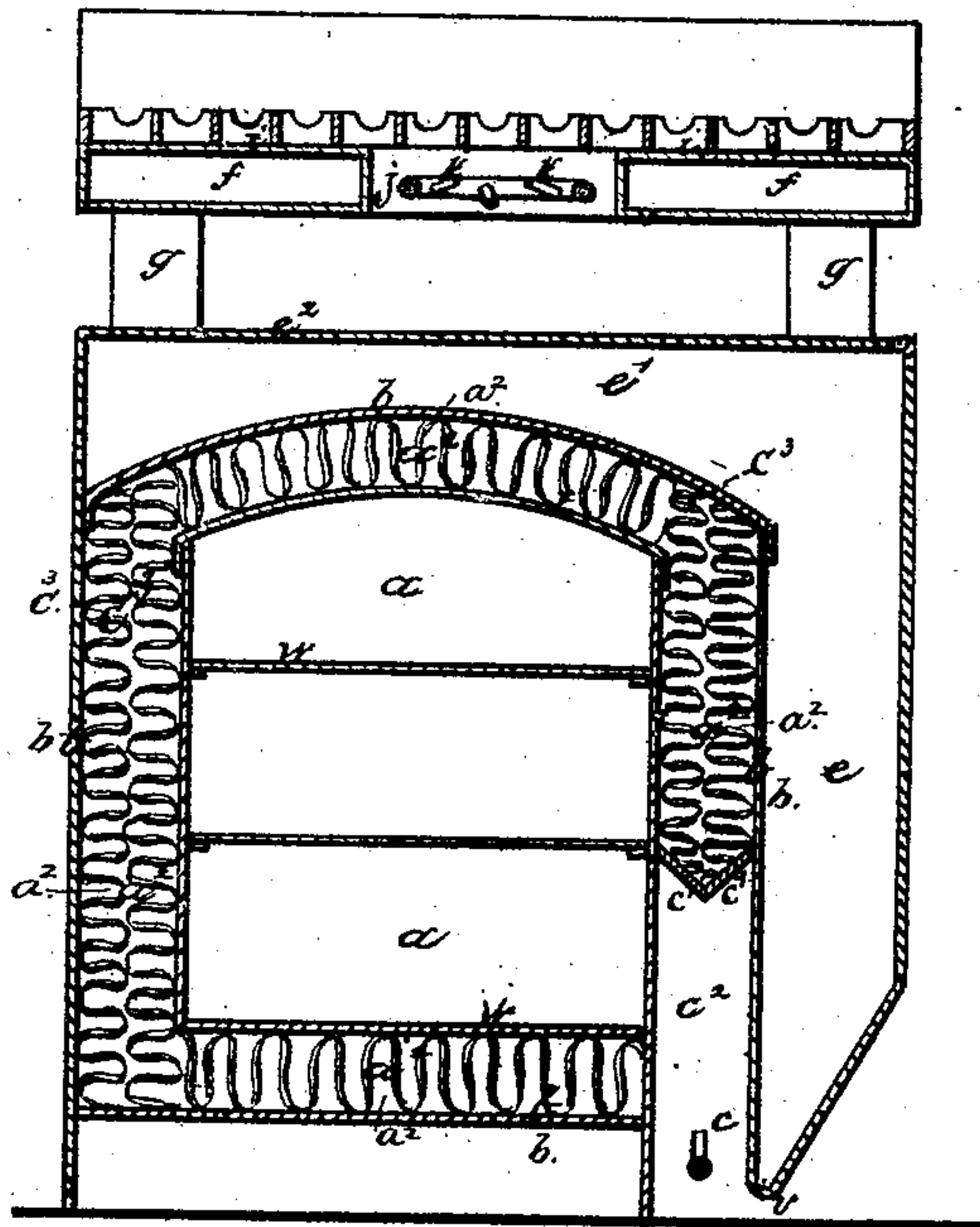
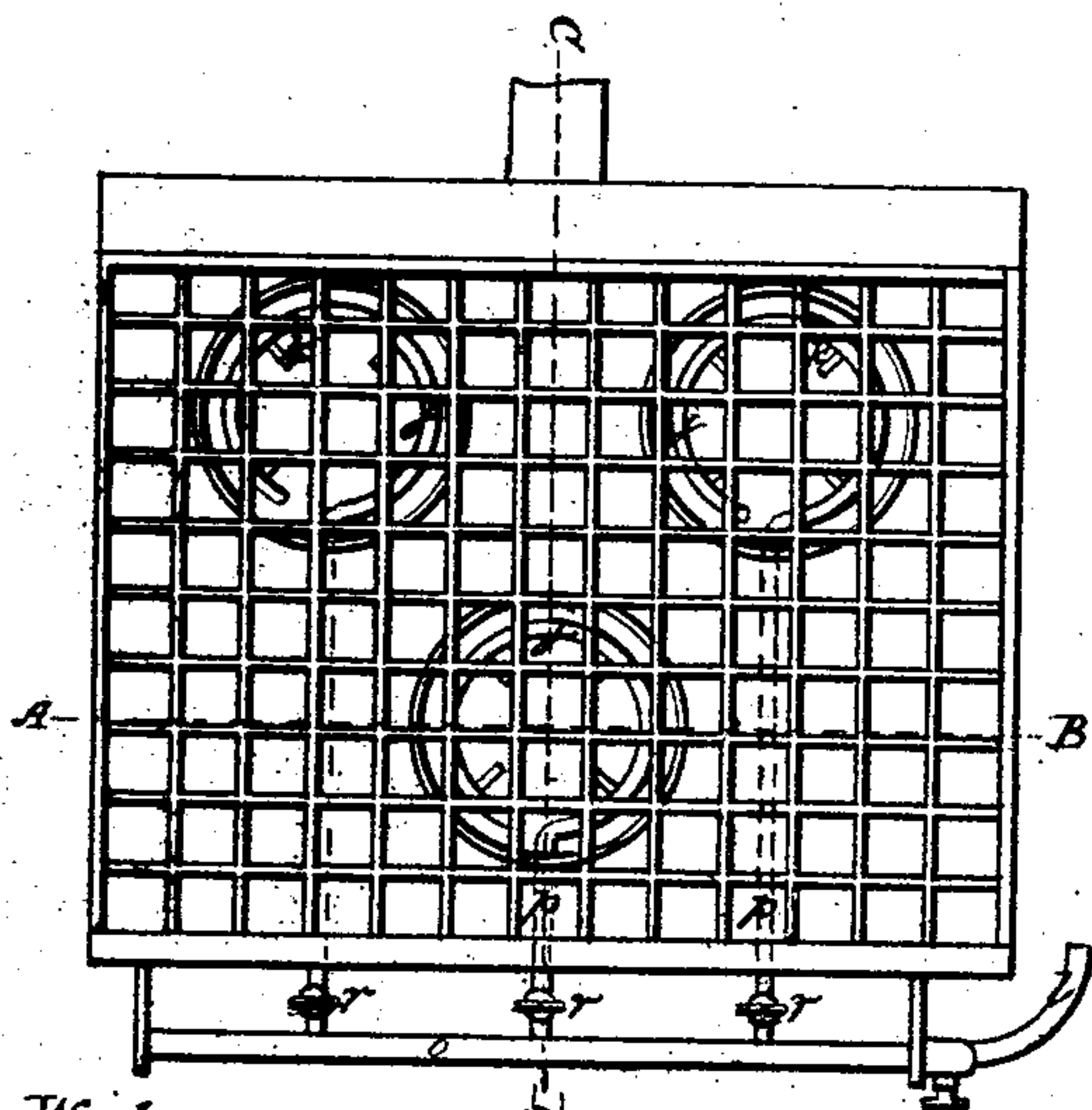
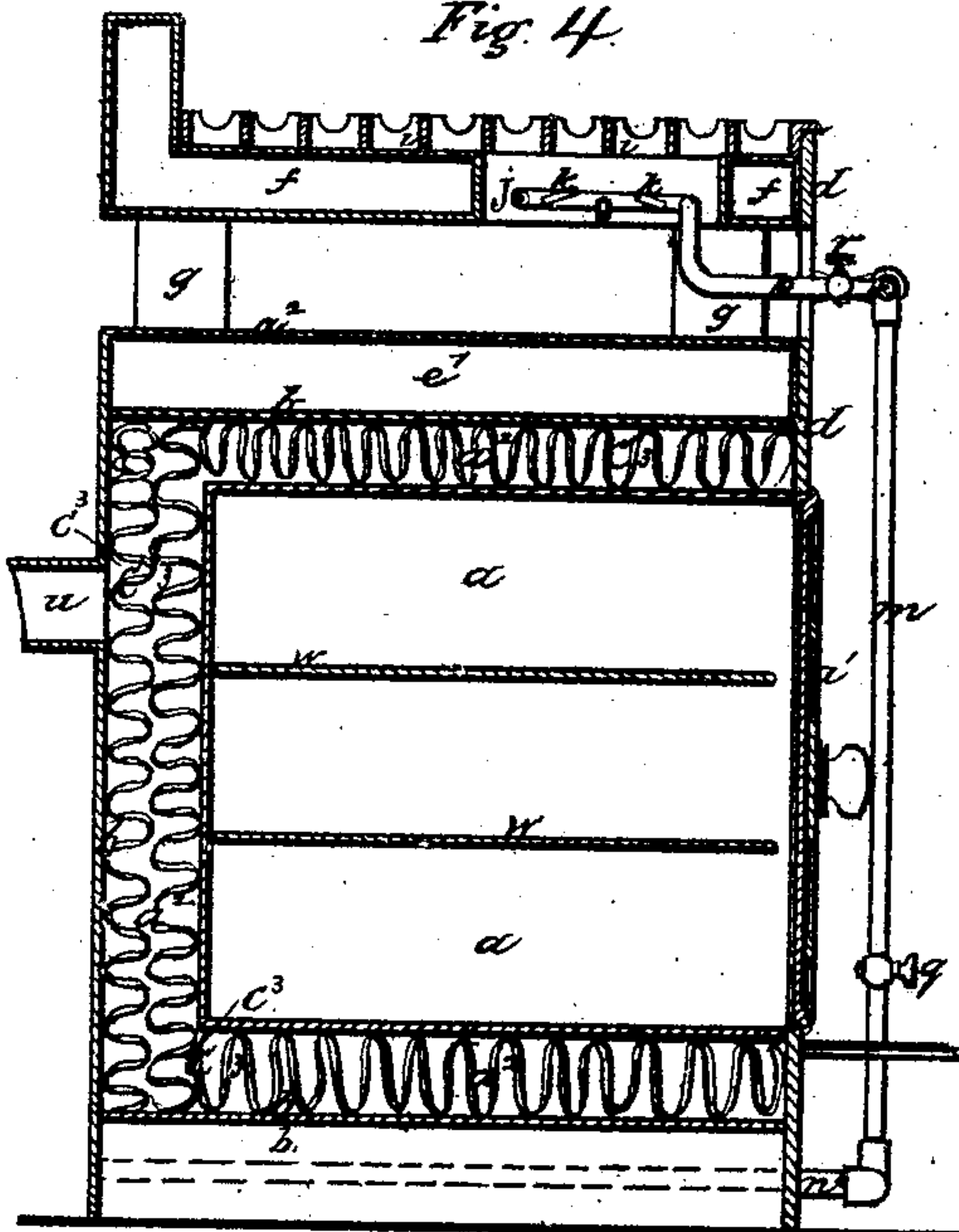


Fig. 1.



Witnesses
W. T. Gibson
G. F. Redfern

Fig. 4.



Inventor.
B. Giles

UNITED STATES PATENT OFFICE.

BENJAMIN GILES, OF BLACKHEATH, ENGLAND.

IMPROVEMENT IN COOKING APPARATUS.

Specification forming part of Letters Patent No. 151,871, dated June 9, 1874; application filed October 29, 1873.

To all whom it may concern:

Be it known that I, BENJAMIN GILES, of Blackheath, in the county of Kent, England, have invented a certain Improved Cooking Apparatus, of which the following is a specification:

This invention consists in the construction of an improved gas cooking apparatus, in which the whole of the heat from the gas employed is utilized, and contact of the viands with the fumes of the gas is avoided. The improved cooking apparatus is applicable for roasting, baking, boiling, stewing, grilling, and frying, and also for heating water for domestic purposes.

To make my invention better understood, I will proceed to describe the same by reference to the accompanying drawing, in which—

Figure 1 is a plan, and Fig. 2 a front elevation, of my improved cooking apparatus. Fig. 3 is a section on line A B, Fig. 1; and Fig. 4, a section on line C D, Fig. 1.

Similar letters in all the figures represent similar parts.

The improved apparatus is constructed of an oven, *a a*, made of sheet-iron. A jacket, *b b*, is applied at the sides, top, bottom, and back of the oven *a*, the space *a*² between the oven *a* and the jacket *b* forming the space or chamber for the circulation of the air heated by the gas. In this chamber *a*² I place heat-conductors, formed preferably of strips of thin sheet metal, twisted into a spiral form by being coiled around a rod or cylinder of about half an inch in diameter. These heat-conductors are placed vertically at the sides and back of the heat-chamber, and horizontally in the top and bottom of the same, and present a large heating-surface at the same time that they effect a thorough circulation of the air. Other heat-conductors may be employed—such, for example, as lumps of fire brick, pumice-stone, asbestos, or metal, which are, by preference, perforated, and so placed as to allow of the free circulation of the air through them. At the lower part of one side of the air-chamber is placed a number of gas jets or burners, *c*, Fig. 3. (Shown also in dotted lines at Fig. 4.) The gas-jets may be placed at either side or both sides of the oven. A grating, *c*¹, is placed at some distance above the

burners *c*, on which the heat-conductors rest, the space *c*² thus forming an open chamber, in which the gas is burned. Instead of a single row of burners, as shown, two rows may be employed, placed at an angle and pointing toward one another. I can also, if found desirable, place the burners *c* in an open chamber formed underneath the bottom of the oven *a*. The front *d* of the apparatus, including the door *a*¹ of the oven, is made of cast-iron. At the side and top of the jacket *b* is a chamber or boiler, *e e*¹, for heating water. The top *e*² of this water-chamber forms a hot plate for grilling, as hereinafter described. At a short distance above the chamber *e*¹ is another water-chamber, *f*, the tubes *g g* connecting the two chambers together. The cold water is supplied to the boiler or water-chambers by a suitably-placed supply-cistern, with ball-cock, and the water is drawn off, as required, by the tap *h*. The water may also be employed for baths and other purposes, on the circulation principle or otherwise. *i* is a hot plate at the top of the apparatus. *j j j* show gas-rings, placed in hollow spaces made in the water-chamber *f*. The burners *k k* of the gas-rings *j* are placed at an angle, as shown, by which the heat is thrown downward as well as upward, and smoke and smell avoided. *l* is the pipe supplying the gas to the pipe *m*, connected by the elbow *m'* to the pipe *n* of the gas-burners *c* for heating the apparatus, and also to the pipes *o* and *p*, supplying the gas-rings; *q*, stop-cock for regulating the supply of gas to the whole of the apparatus; *r r r*, stop-cocks of the gas-rings; *s*, small door, closing an opening in the front of the apparatus, through which the gas jets or burners *c* are lighted; *t*, ventilator in the door *a*¹ of the oven; *u*, pipe from the air-chamber *a*², and leading to the flue; or, instead of the waste heat being conveyed direct to the flue, it may be utilized for other purposes.

To make use of this improved cooking apparatus, the gas is lighted at the burners *c*. The external air, entering the chamber through the opening *v* at the side of the apparatus, is heated and passes upward through the grating *c*¹, and then circulates freely through the heat-conductors in the space *a*². These heat-conductors become quickly heated, and, con-

sequently, the oven *a* and the boilers *e*, *e*¹, and *f* are also heated. The joints or other articles of food to be roasted or baked are placed in the usual utensils on the shelves *w* of the oven, and will be cooked without contact with the fumes of gas. For boiling, stewing, or frying, the ring-burners are employed, the sauce-pans or other cooking utensils being placed on the open iron-work on the hot plate *i*, and over the said ring-burners. For grilling, the grill or grills are placed on the hot plate *e*², the cooking being effected by the downward heat from the ring-burners.

I would observe that, in constructing a cheaper form of apparatus, I dispense with that part of the air-chamber *a*² at the bottom and back of the apparatus, and also with the water-chambers *e*¹ and *f*.

What I claim is—

1. In a gas cooking apparatus, the combination of an oven, *a*, with a jacket, *b*, forming chambers *a*² at the sides, top, bottom, and back of such oven *a*, heat-conductors *e*³, burners *c*, applied either at one or both sides of the oven *a*, chamber *e*², and grating *e*¹, constructed and

arranged substantially as and for the purposes set forth.

2. In a gas cooking apparatus, the combination, with a jacket, *b*, burners *c*, chamber *e*², grating *e*¹, and heat-conductors *e*³, of the boiler *e* *e*¹, formed at the side and top of the jacket *b*, the water-chamber *f*, and tubes or pipes *g* *g*, constructed and arranged substantially as and for the purposes specified.

3. In a gas cooking apparatus, constructed as described, the combination of the boiler *e* *e*¹, water-chamber *f*, and plate *i* with a series of gas-rings, *j*, and burners *k*, such burners *k* projecting upward and downward alternately, whereby an upward as well as a downward direction is given to the heat, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand and affixed my seal this sixteenth day of July, one thousand eight hundred and seventy-three.

B. GILES. [L. S.]

Witnesses:

W. A. GILBEE,
G. F. REDFERN.