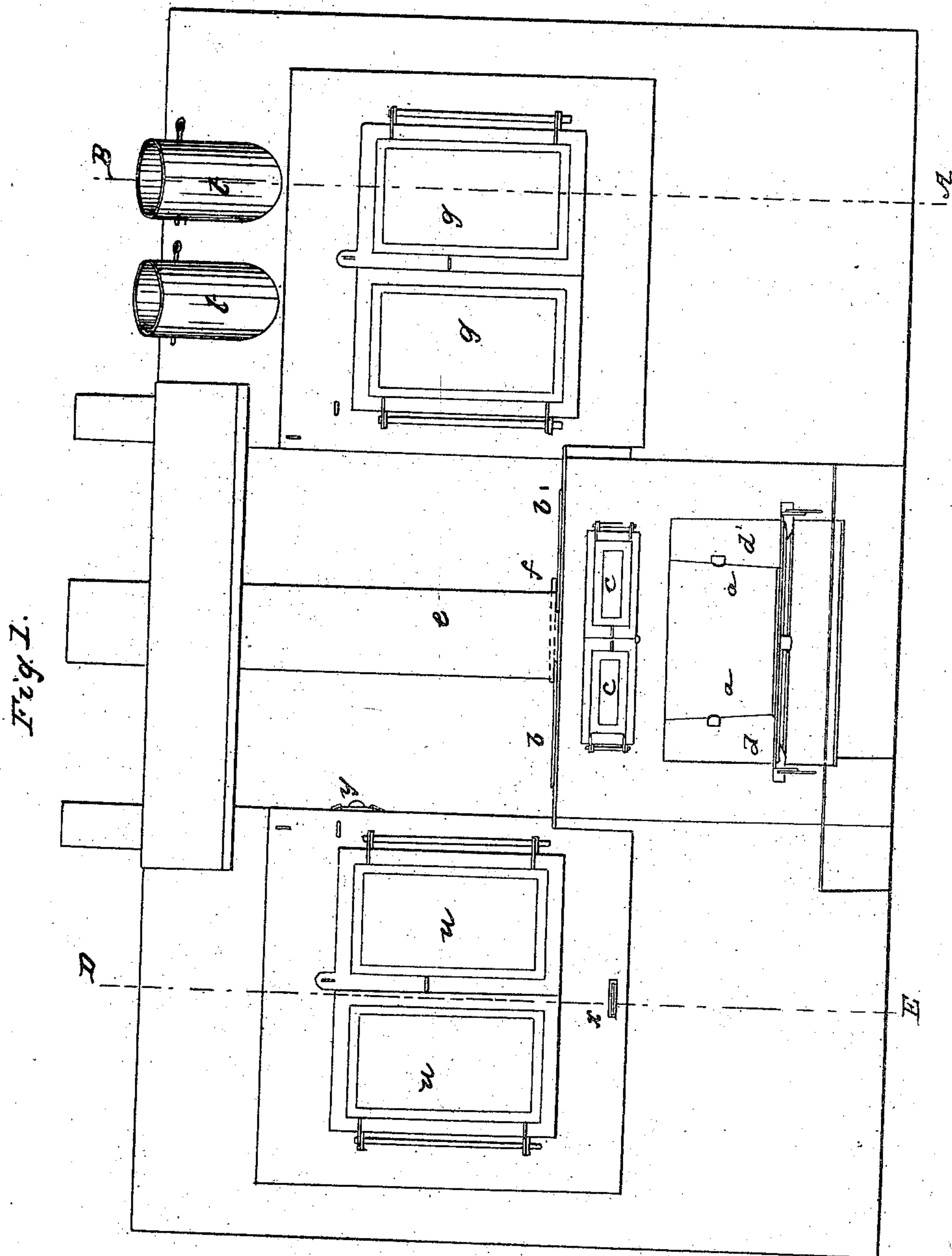


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4 Sheets—Sheet 1.

No. 8,685.

Patented Jan. 27, 1852.



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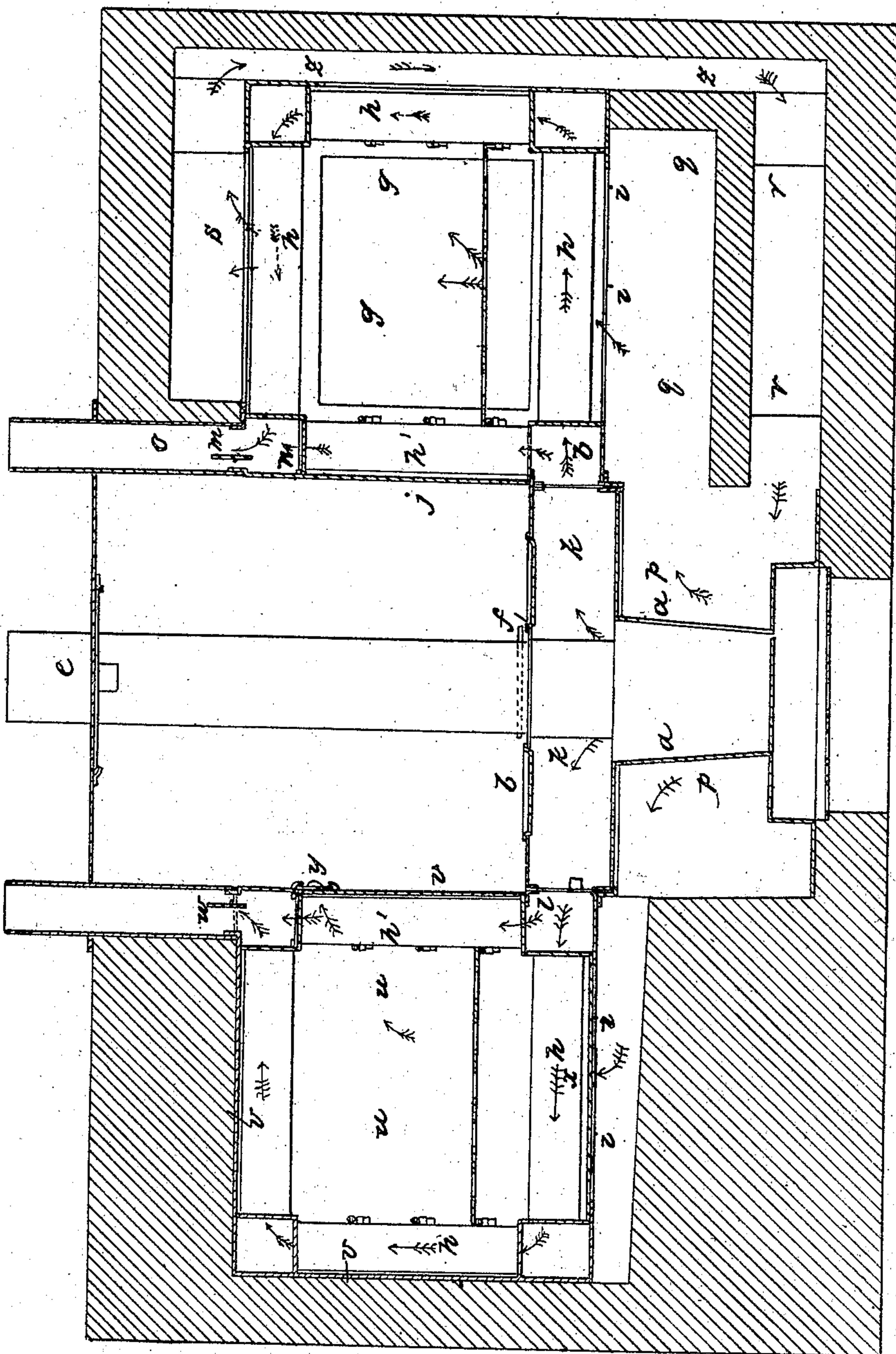
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Range.

No. 8,685.

Patented Jan. 27, 1852.

Fig. 2



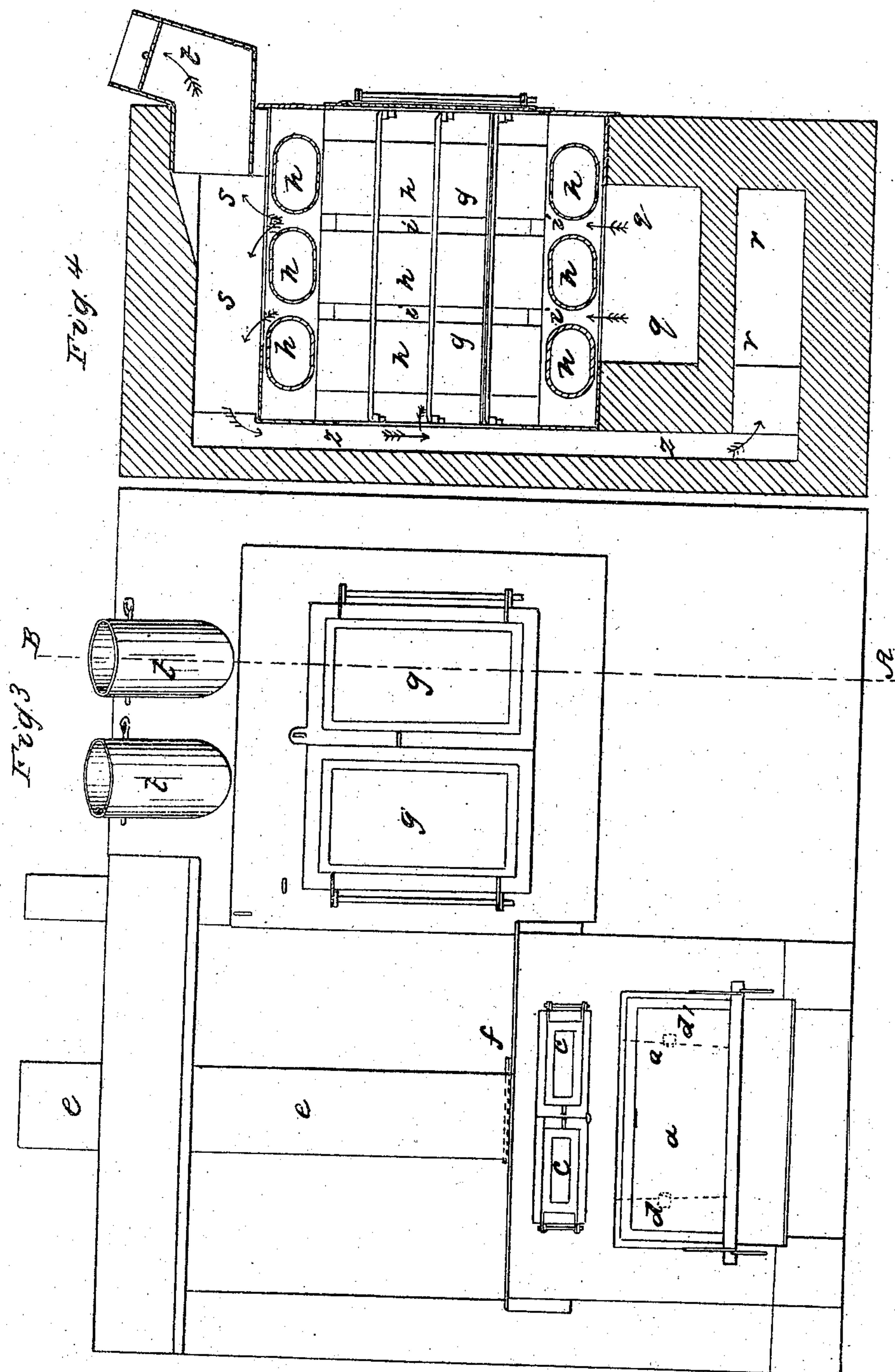
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4 Sheets—Sheet 3.

Range.

No. 8,685.

Patented Jan. 27, 1852.



J. P. HAYES.

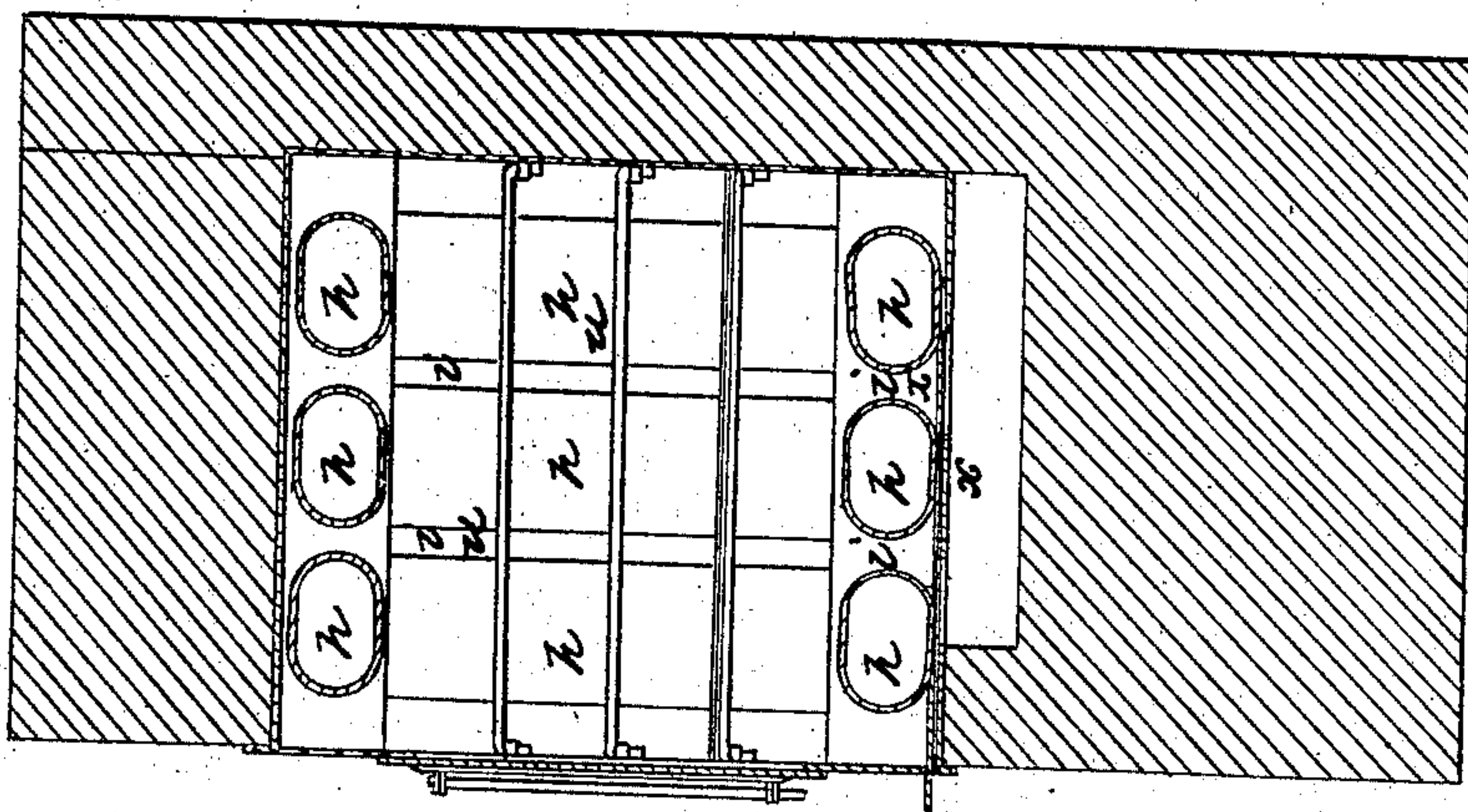
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Range.

No. 8,685.

Patented Jan. 27, 1852.

Fig. 5



UNITED STATES PATENT OFFICE.

JOHN P. HAYES, OF BOSTON, MASSACHUSETTS.

COOKING-RANGE.

Specification of Letters Patent No. 8,685, dated January 27, 1852.

To all whom it may concern:

Be it known that I, JOHN P. HAYES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cooking-Ranges, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said invention, by which it may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plates of drawings represent my improved range.

In Plate 1 Figure 1 is a side elevation of the range with both ovens attached. In Pl. 2, Fig. 2, is a longitudinal vertical section of the same. In Pl. 3, Fig. 3 is a side elevation of the range with the main oven only, and Fig. 4 is a transverse vertical section of the same taken in the plane of the line A B. Fig. 5, Pl. 4 is a transverse vertical section of the additional oven taken in the plane of the line C D, Fig. 1, Pl. 1.

My improvements consist first, in the arrangement of two ovens, one on each side of the fire chamber, by which two baking operations can be carried on in the same range, while it can be built with only one oven if desirable. Second, in forming the top, bottom and sides of the ovens of elliptical shaped pipes or flues, through which the heat and smoke from the fire passes. The elliptical shape of these pipes gives a much greater radiation to the heat in all directions, than the flat sides of which ovens are usually constructed. I have also so arranged a hot air chamber, and diving flues on the back and one side of the main oven, as to cause the hot air to pass up through the oven, between the pipes of which it is composed, down the said diving flues back again into the hot air chamber from which it started, thus keeping the same hot air in constant circulation in and about the oven. When no baking is going on, this hot air can be made to heat the apartments of the house, in the same manner as a furnace, as will be hereinafter explained.

a a in the drawings represents the fire pot, with an ash pit under it and a plate *b* with apertures for boiling purposes over it. *e, e* are the fire chamber doors. In front and

on the sides of the fire pot, are placed two swinging doors *d, d'* which, when closed, form with the fire pot, a radiating surface to throw the heat upon anything placed in front of the range. At the back of the fire chamber is a pipe *e*, for the smoke, &c. to pass through while the fire is being kindled, this pipe having a damper *f* in it, to prevent the smoke from passing after the fire is lighted. The oven *g g*, which is placed on the right of the fire chamber, has its top bottom and sides formed by a series of elliptical pipes *h', h, h*, &c., so placed as to leave apertures *i, i, i*, between them. The heat and smoke as it comes up from the fire pot into the space *k k* above the same (the damper *f* in the pipe *e* being closed) enters the space or box *l* into which the pipes *h'*, on the side nearest the fire chamber, and those on the bottom of the oven, open. A small portion of this smoke, &c., is allowed to pass up the pipes *h'* and by the damper *m* into the flue *o*, this quantity being regulated by an adjustable damper *n*, directly under the damper *m*. The greater part of the smoke passes, as shown by the blue arrows in the drawings, through the bottom and side pipes most remote from the fire chamber, into the pipes on top of the oven, out into the flue *o*, the damper *m* being opened, so that these pipes are kept constantly hot. It will be seen that the pipes *h'*, on the side of the oven nearest the fire chamber, can be dispensed with, as this side may be sufficiently heated by heat from the fire radiated through the plate *j*.

On the back and side of the fire pot *a a*, is formed a hot air chamber *p p*, which opens into the flue *q q* formed under the oven. When the fire is first kindled, the cold air in immediate contact with the fire pot, becomes heated, and passes, as shown by red arrows, through the flue *q q* up into the oven, through the apertures *i, i*, &c., between the pipes on the bottom of said oven, and, getting gradually cooler as it passes up, descends through the diving flues *z z*, formed in the brick work on the back and side of the oven, into the flue *r r*, under the flue *q q*, and thence to the fire pot, where it is again heated and again rises. By this means a constant circulation of hot air is kept up through the oven. By opening one of the swinging doors *d'*, a draft of cold air will enter between the fire pot and said door, and becoming heated, will pass, by the

route above described, into the chamber *s s* over the top of the oven, from whence it can pass, as shown by yellow arrows into other apartments, when the dampers in the
 5 pipes *t, t* are opened.

The left hand oven *u u*, like the right hand one, has elliptical pipes on its top, bottom, and sides; but unlike the oven *g g*, these pipes, with the exception of the bottom ones, are inclosed in a case *v, v*. The
 10 smoke as it comes up from the fire pot, passes through the pipes out by the damper *w*, as shown by the blue arrows in the drawings, in precisely the same route that it takes
 15 in the oven *g g*. The apertures between the pipes on the bottom of this oven *u u* can be kept covered or left open, by means of a sliding damper *x*. Near the top of the side of the oven nearest the fire chamber, is another
 20 sliding damper *y*. When the damper *x* is open, the hot air from the chamber behind the fire pot, will pass up between the bottom pipes through the oven, and out the apertures at *y*. The hot air will pass more
 25 readily through this oven than through the oven *g g*, the dampers *x* and *y* being open, as there are no diving flues and nothing to prevent its escape.

By closing the smoke and hot air dampers
 30 in the left hand oven, it will be seen that the smoke and hot air will pass into the pipes and through the right hand oven; after which, this oven having become sufficiently heated, the smoke damper *m* can be closed
 35 and the smoke damper *w* opened, making the smoke pass through the pipes of the left

hand oven, while the hot air which is circulating through the right hand oven and its diving flues, keeps it up to its proper degree of heat, thus using both ovens, if desired, at
 40 the same time.

It will be seen that this range can be used either as a single or double one, by removing the left hand oven and its brick work, and placing a partition in its stead on the side
 45 of the fire chamber.

Having thus described my improvements in cooking ranges I shall state my claims as follows:—

What I claim as my invention and desire
 50 to have secured to me by Letters Patent is,

1. The combination of the pipes, arranged with flue spaces between them, with the hot air flues and diving flues of the brick work, on the back and side of the oven, by which
 55 hot air is circulated through the oven and back again to the chamber about the fire pot, and so on continuously; this hot air being used either for baking or for heating the
 60 apartments of the house.

2. I claim the use of swing doors, arranged one on each side of the front of the fire pot, serving for radiating surfaces in connection with said front of the fire pot, for roasting purposes, and to admit the cold air when
 65 opened, as hereinabove described and set forth.

JOHN P. HAYES.

Witnesses:

EZRA LINCOLN,
 JOEL GILES.