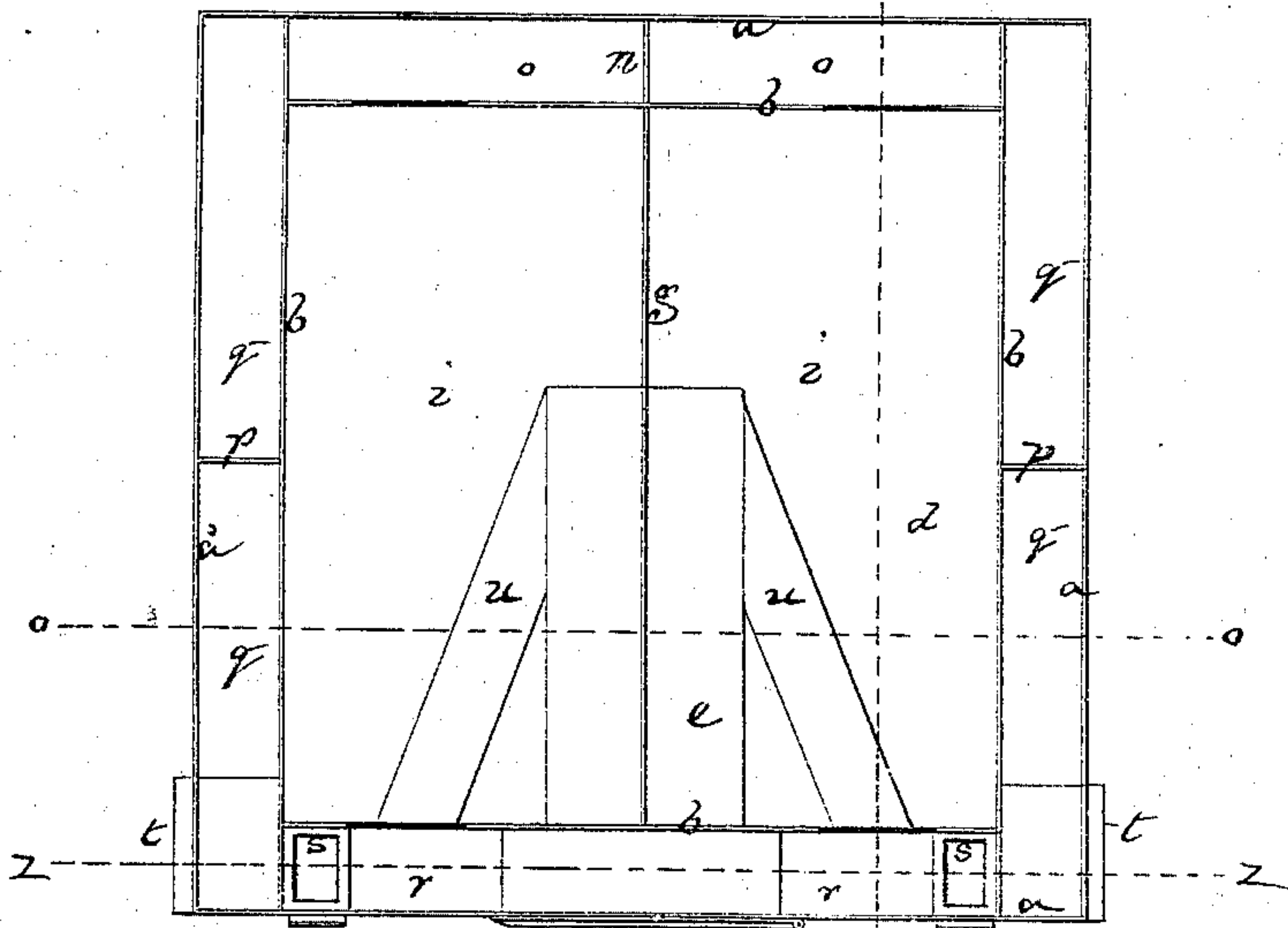


**C. ROBBINS.**  
**Bakers' Ovens.**

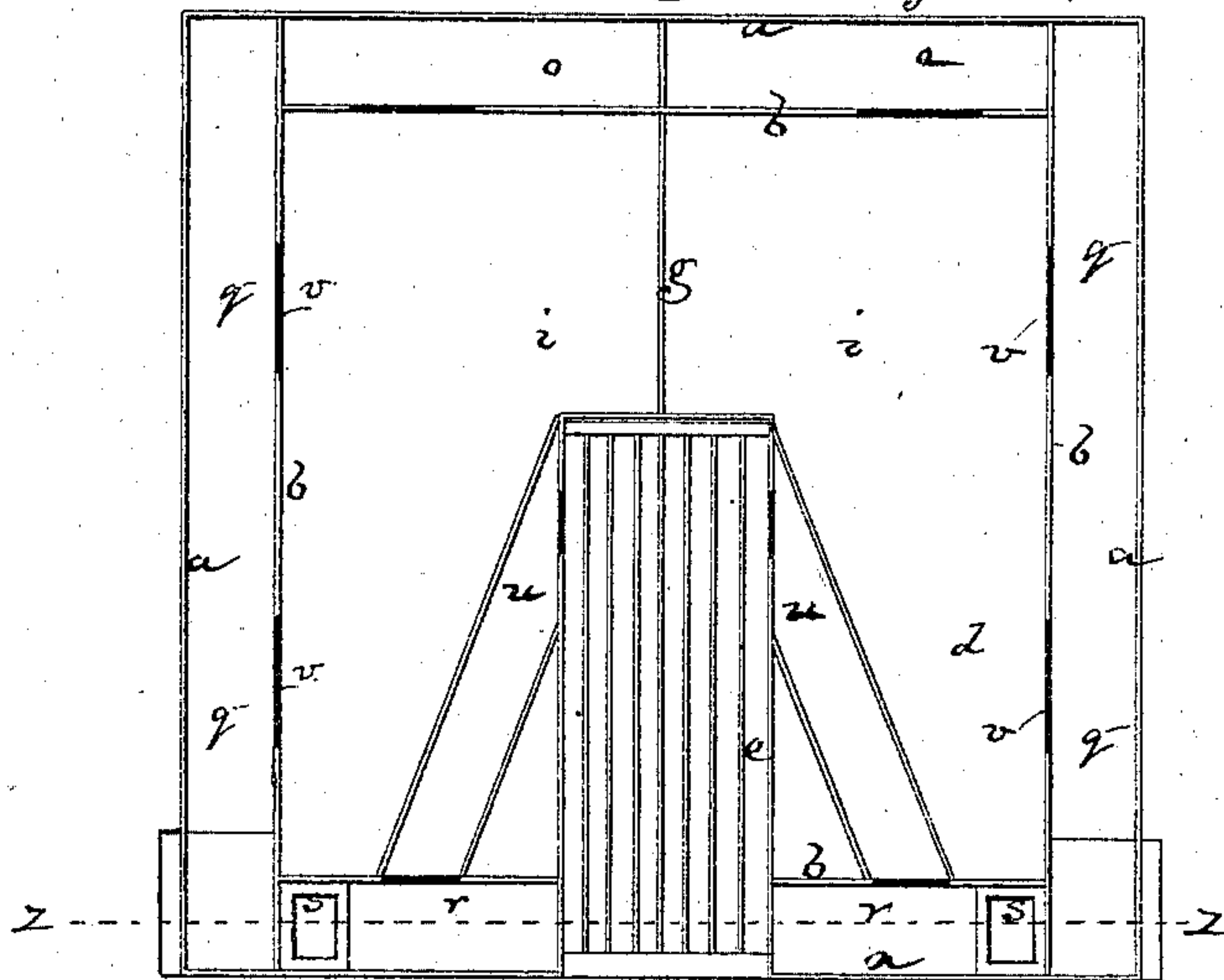
No. 137,961.

Patented April 15, 1873.

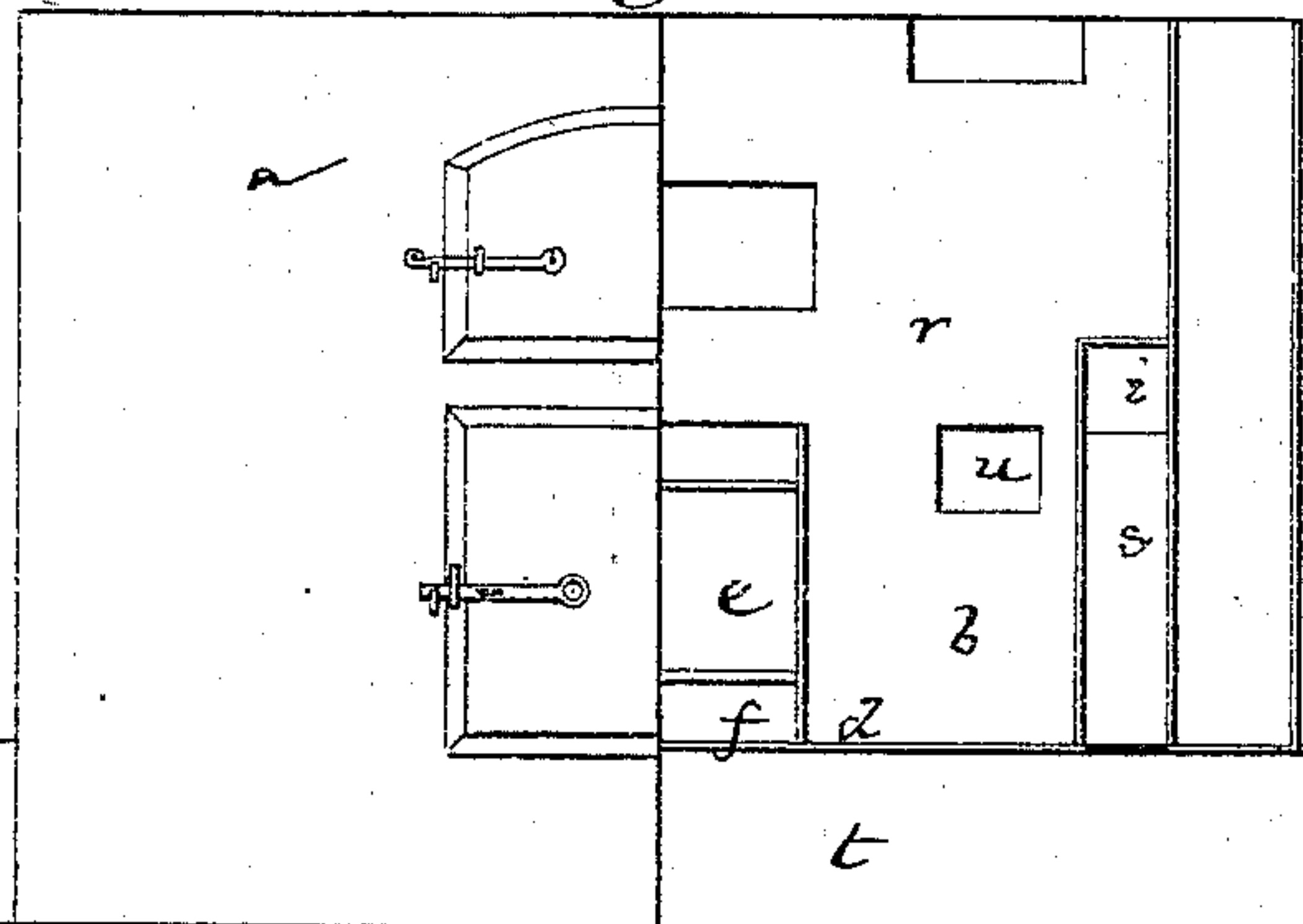
*Fig. 1.*



*Fig. 2.*



*Fig. 4.*



Witnesses.  
M. W. Frothingham.  
G. Warren Brown.

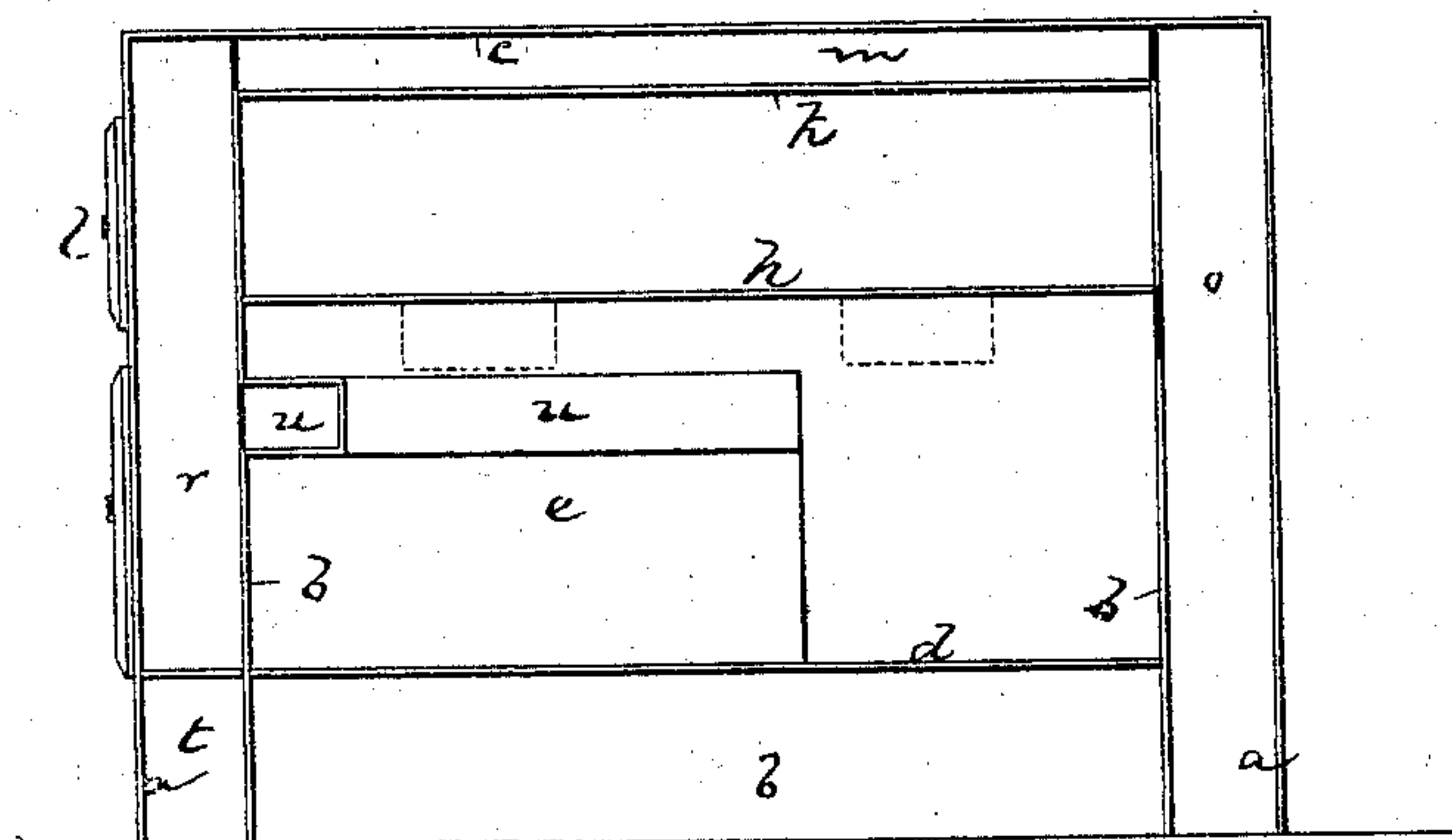
Inventor.  
Charles Robbins.  
By his Atty.  
Crook & Gould

**C. ROBBINS.**  
**Bakers' Ovens.**

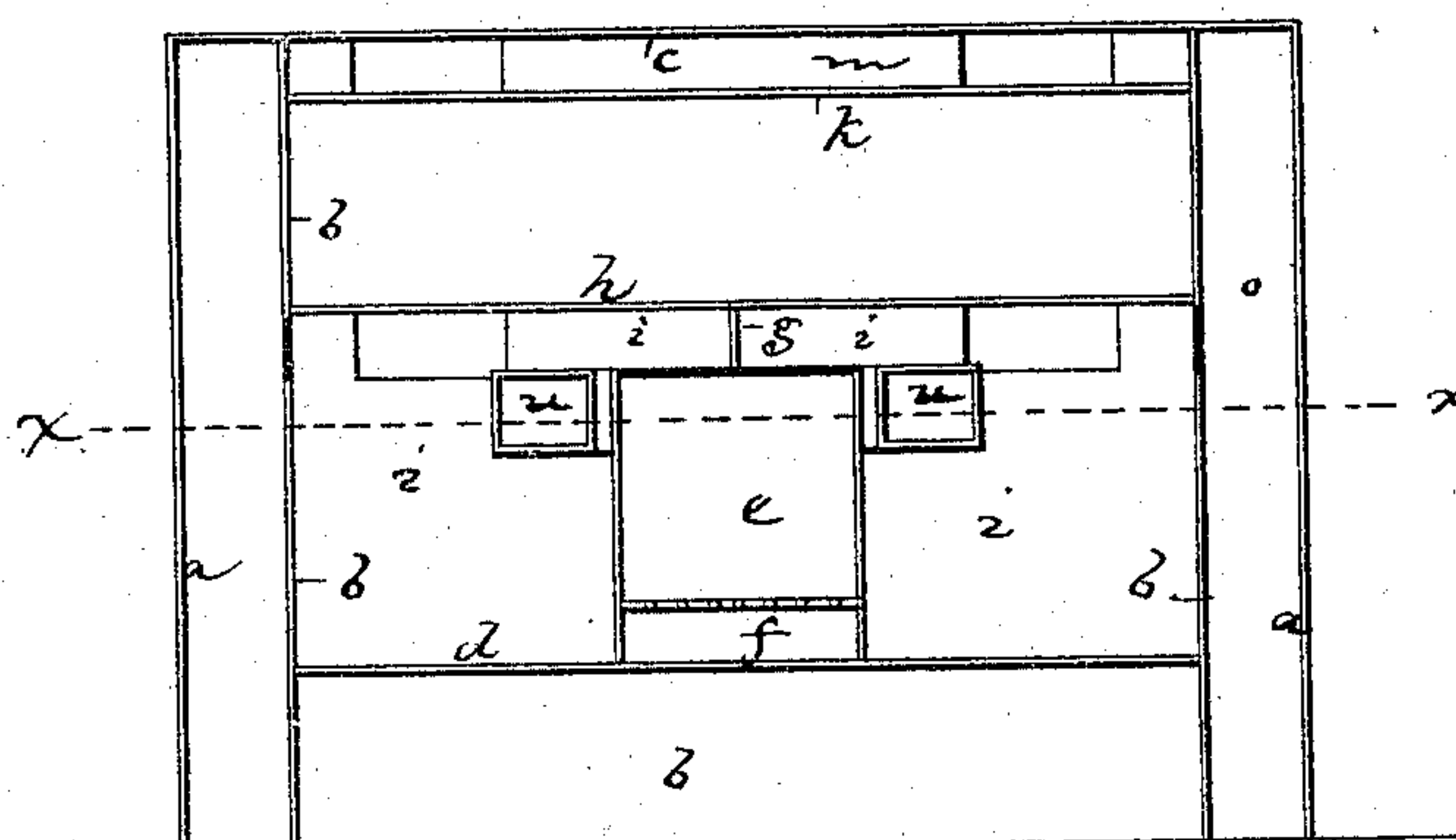
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*Fig. 3.*



*Fig. 5.*



Witnesses.  
M. W. Frothingham.  
C. Warren Brown

Inventor  
Charles Robbins.  
By his Atty.  
Crosby & Gould



# UNITED STATES PATENT OFFICE.

CHARLES ROBBINS, OF CHARLESTOWN, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND JEROME A. ROBBINS, OF SAME PLACE.

## IMPROVEMENT IN BAKERS' OVENS.

Specification forming part of Letters Patent No. **137,961**, dated April 15, 1873; application filed February 27, 1873.

*To all whom it may concern:*

Be it known that I, CHARLES ROBBINS, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Bakers' Ovens; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates particularly to the arrangement of flue-spaces around an oven designed for a baking-oven, and with relation to the fire-pot, in which the heat is generated for heating the oven.

In my construction the fire-pot is in the lower part of a large chamber, which chamber, by the fire-pot and a partition in rear of and over the fire-pot, is divided into two parts, the bottom oven being over this fire-pot, from which it is separated by the center partition, the plate resting upon the partition. The upper plate is placed at a suitable distance above the lower one, and over this plate, between it and the top plate of the structure, is a flue-chamber, bisected by a center partition to form two flues, each of which communicates, at its rear end, with a vertical flue-chamber extending down at the rear of the structure, and at its front end with a vertical flue-chamber extending down at the front of the structure, the fire-pot having at its rear part two flue-passages opening into flues which extend to the front flue-chambers, from which front flues the flames and smoke pass into the two top flues, and thence to the rear flues, down which they pass into and through flue-openings into the flue-chambers under the oven, passing through which they escape by front flue-openings into vertical flues leading downward into a cross-flue at the front of the structure, this flue leading directly to the chimney or main flue. The large flue-spaces at the sides of the fire-pot, through which the flames and smoke pass to reach the front downward flues, may have flue-passages opening into vertical side spaces.

My invention consists in an oven having the flues extending from its rear part into vertical flues at the front, and having the front flues

and other flues thus arranged with respect to the fire-pot and oven.

The drawing represents an oven embodying my construction.

Figure 1 shows a plan, the top plate and oven-plates being removed. Fig. 2 is a horizontal section on the line *xx*. Fig. 3 is a vertical section on the line *yy*. Fig. 4 is a view half in front elevation and half in sectional elevation, the section being on the line *zz*. Fig. 5 is a vertical cross-section on the line *oo*.

*a* denotes the main or outer vertical plates of the structure; *b*, the inner vertical plates, placed at such distance from the outer ones as to form vertical flues on all four sides of the structure. *c* denotes the top plate, covering all the plates *a b* and the chambers formed by them. *d* is a bottom plate forming a bottom to the space inclosed within the wall *b*. At the center of this space, and extending through to the front plate *a*, are the fire-pot *e* and ash-pit *f*, the ash-pit plates resting upon the bottom plate *d*. At the rear of the fire-pot is a center partition, *g*, which also extends up and over the oven, and has resting upon it the bottom oven-plate *h*, the partition *g* dividing the space beneath the plate *h* into two chambers, *i i*. *k* denotes the top plate of the oven; *l*, the door leading to the oven. Over the plate *k* is a horizontal flue-chamber, divided by a center partition into two chambers, *m m*. The space between the rear plates *a b* is divided by a vertical partition, *n*, into two vertical flues, *o o*; the space between the side plates at each side of the structure, by a vertical partition, *p*, into chambers *q q*, while between the front plates *a b* are vertical flues *r r* and escape-flues *s s*, said flues *s s* leading into a bottom flue, *t*. Opening from the rear part of the fire-pot are flues *u u*, these flues *u* leading directly from the fire-pot to and into the front flues *r r*.

The heat is directly radiated from the fire-pot and from the fire-pot flues *u u* into the flue-chambers *i i*, and impinges against the bottom plate of the oven; and, the arrangement of flues being as shown, the course of the flames and smoke from the fire-pot is as follows: The flames and smoke first pass from the fire-pot into the flues *u u*, and by them are



led into the front flues *r r*. From these front flues the flames and smoke pass up and into the horizontal flues *m m*, directly over the oven-plate, and passing through these flues they escape into the rear flues *o o*, and from thence into the flue-chambers *i i*, at the opposite sides of the fire-pot. From these chambers they pass into the vertical flues *s s*, at the front, passing down through which they escape into the flue *t*, which conducts them to the chimney or main flue.

The side chambers *q q* may have openings *v v* from the chambers *i i*, and by these chambers *q q*, whether connected or not with the flue-chambers *i i*, loss of heat by radiation from the side plates *b* is prevented.

It will be obvious that by the arrangement of the fire-pot flues *u u*, vertical flues *r r*, and oven-flues *i i* the flames and hottest products of combustion are first brought (after leaving the fire-pot) into position to heat the front part of the oven, while, by the course of the flues and the position of the fire-pot with ref-

erence to the oven, the thorough heating of the whole oven is insured.

I have described the vertical and horizontal partitions and frame-work as plates, but in practice they will of course be built in part or in whole of masonry.

I claim—

1. In combination with the fire-pot and oven, located as described, the flues *u u*, extending from the fire-pot to the front flues *r r*.

2. The vertical escape-flues *s s* and bottom flue *t*, at the front of the structure, and arranged, with respect to the oven and fire-pot, substantially as shown and described.

3. The general arrangement and location of the fire-pot *e*, oven-flues *u u*, flue-chambers *i i*, vertical rear flues *o o*, and vertical front flues *r r*, substantially as shown and described.

CHARLES ROBBINS.

Witnesses:

FRANCIS GOULD,  
M. W. FROTHINGHAM.