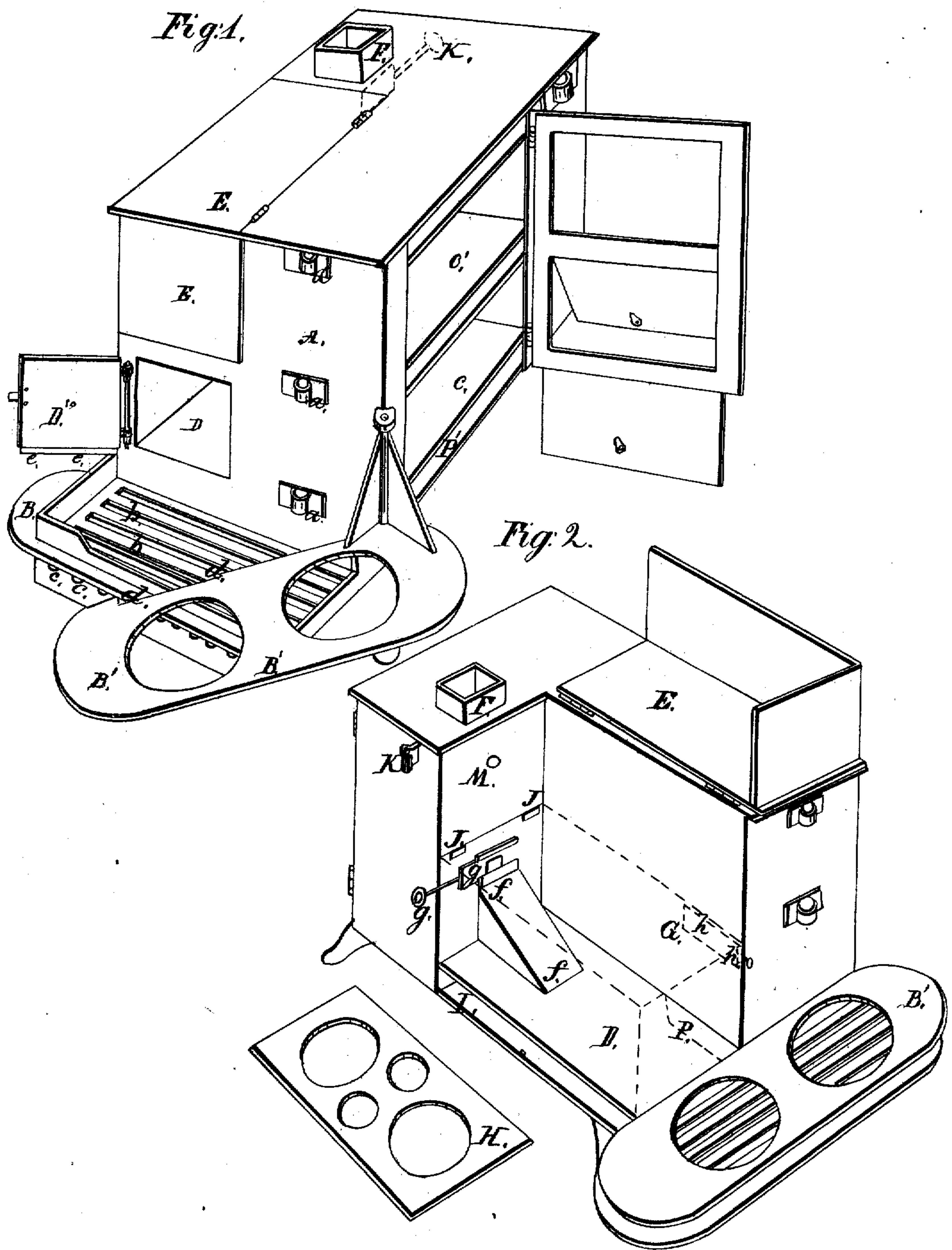


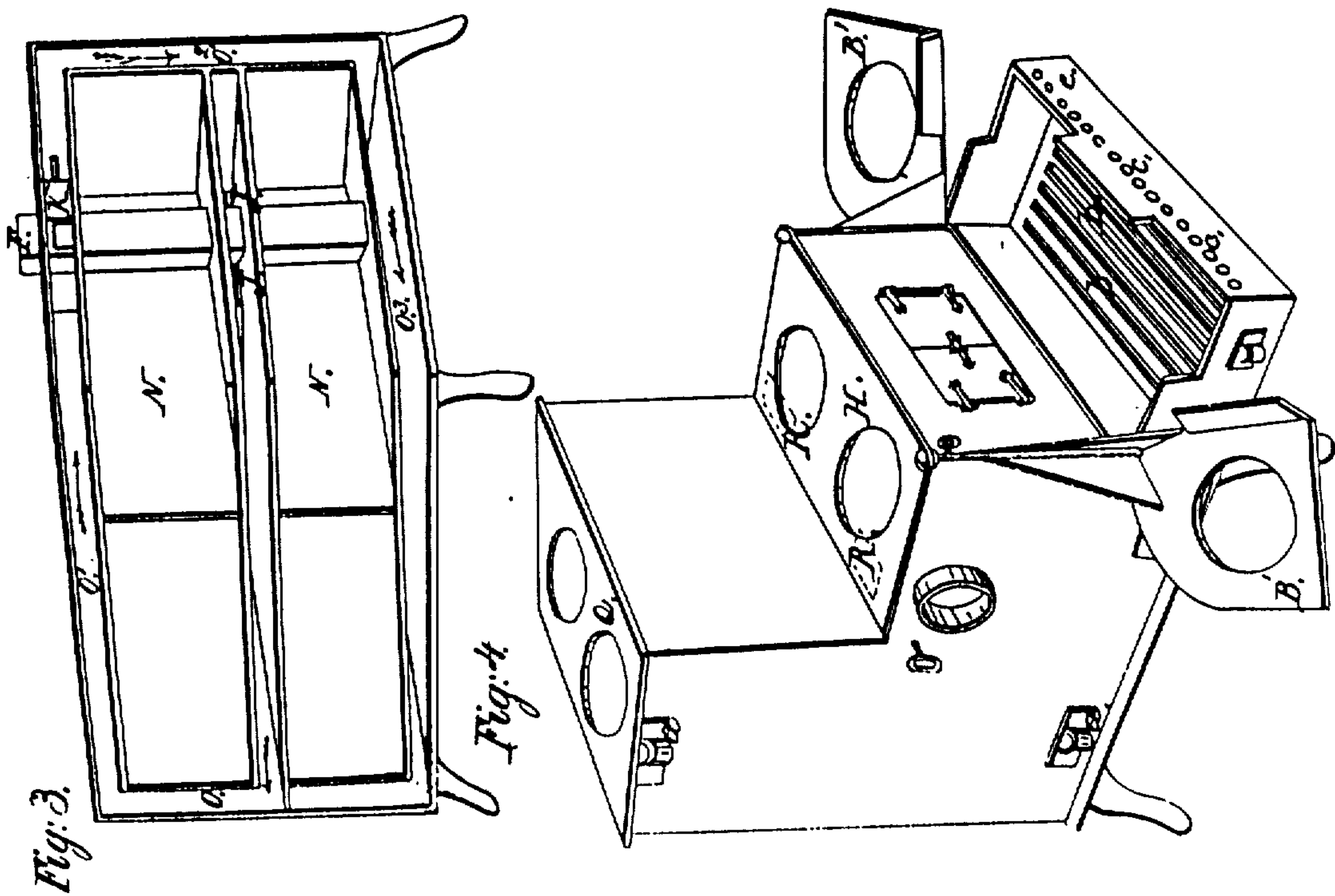
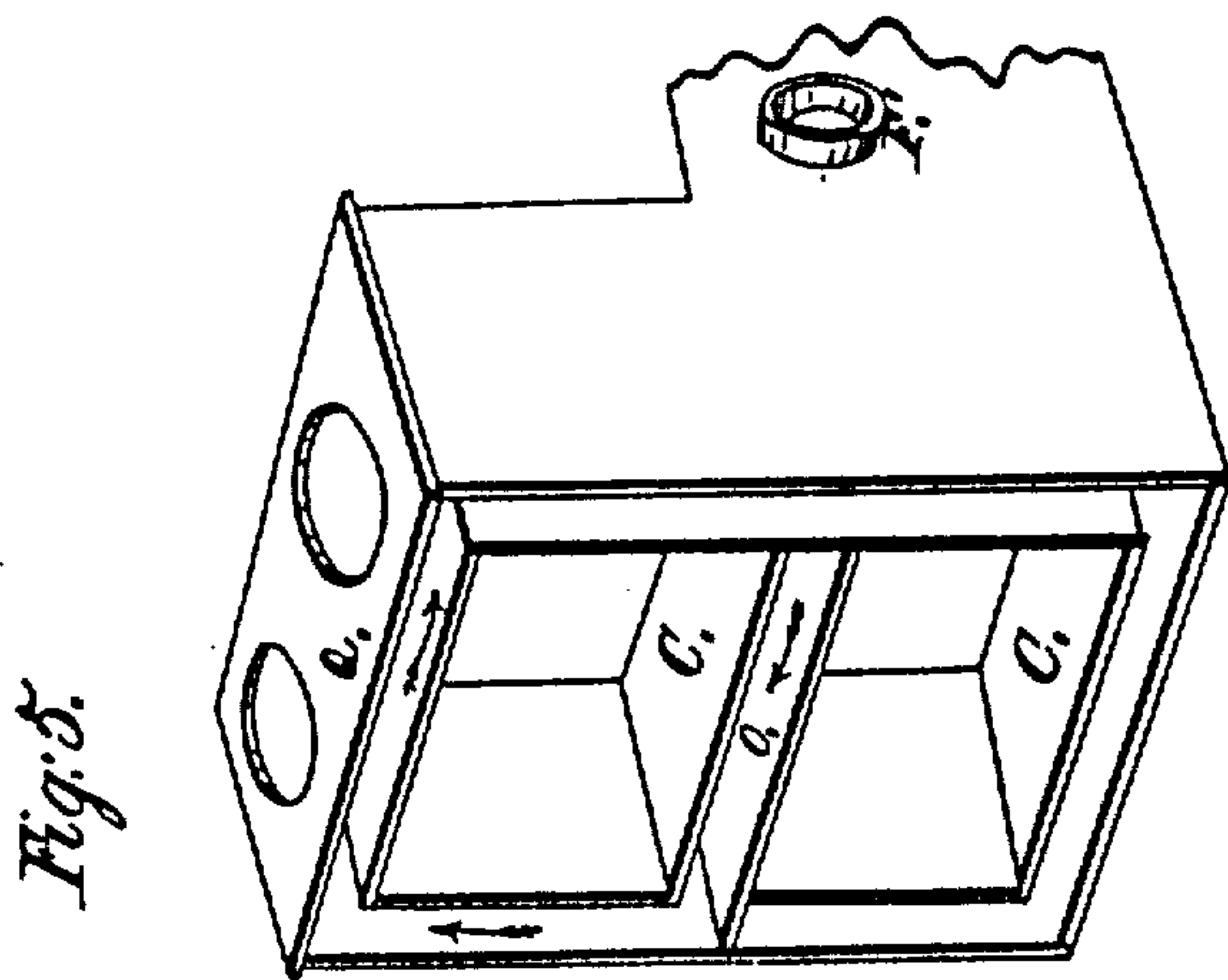
Sheet 1-3 Sheets.

S. L. Chase,
Cooking Store,
No. 1,799, *Patented Sep. 25, 1840.*



Sheet 2-3 Sheets.

S. L. Chase,
Cooking Store,
No. 1,799, Patented Sep. 25, 1840.



Sheet 3-3 Sheets.

S. L. Chase,
Cooking Stove,
No. 1,799, Patented Sep. 25, 1840.

Fig. 5.

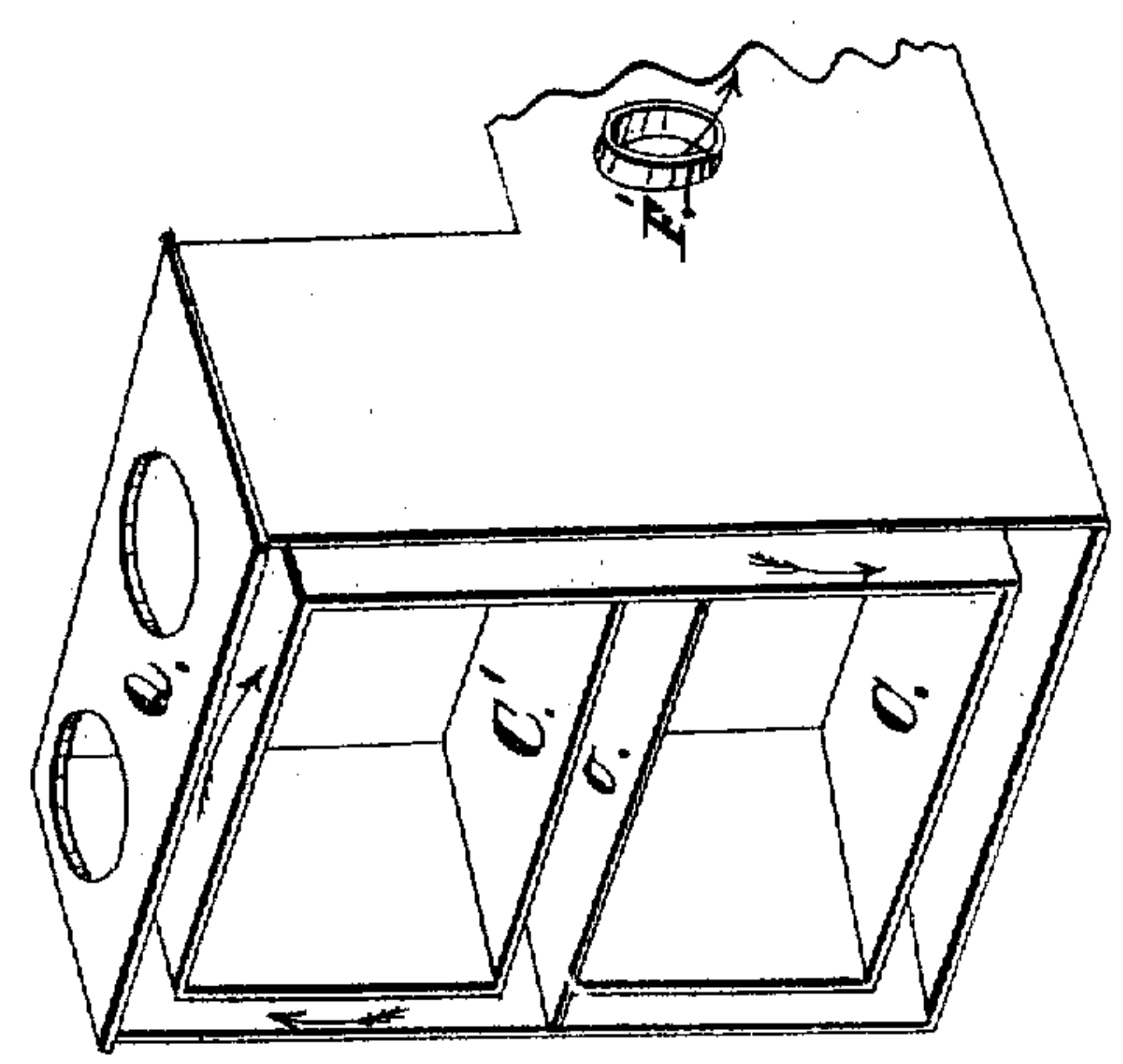


Fig. 3.

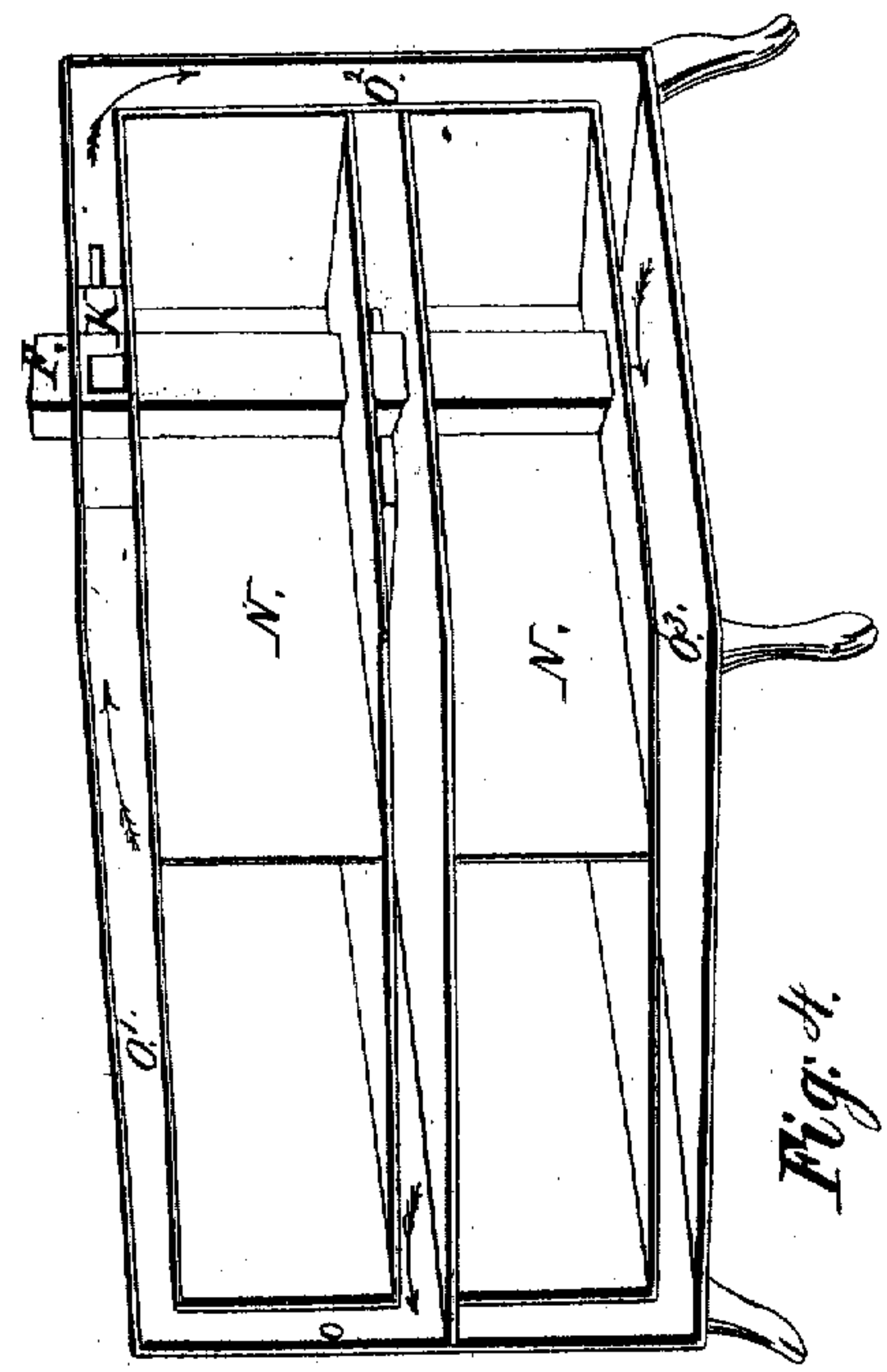
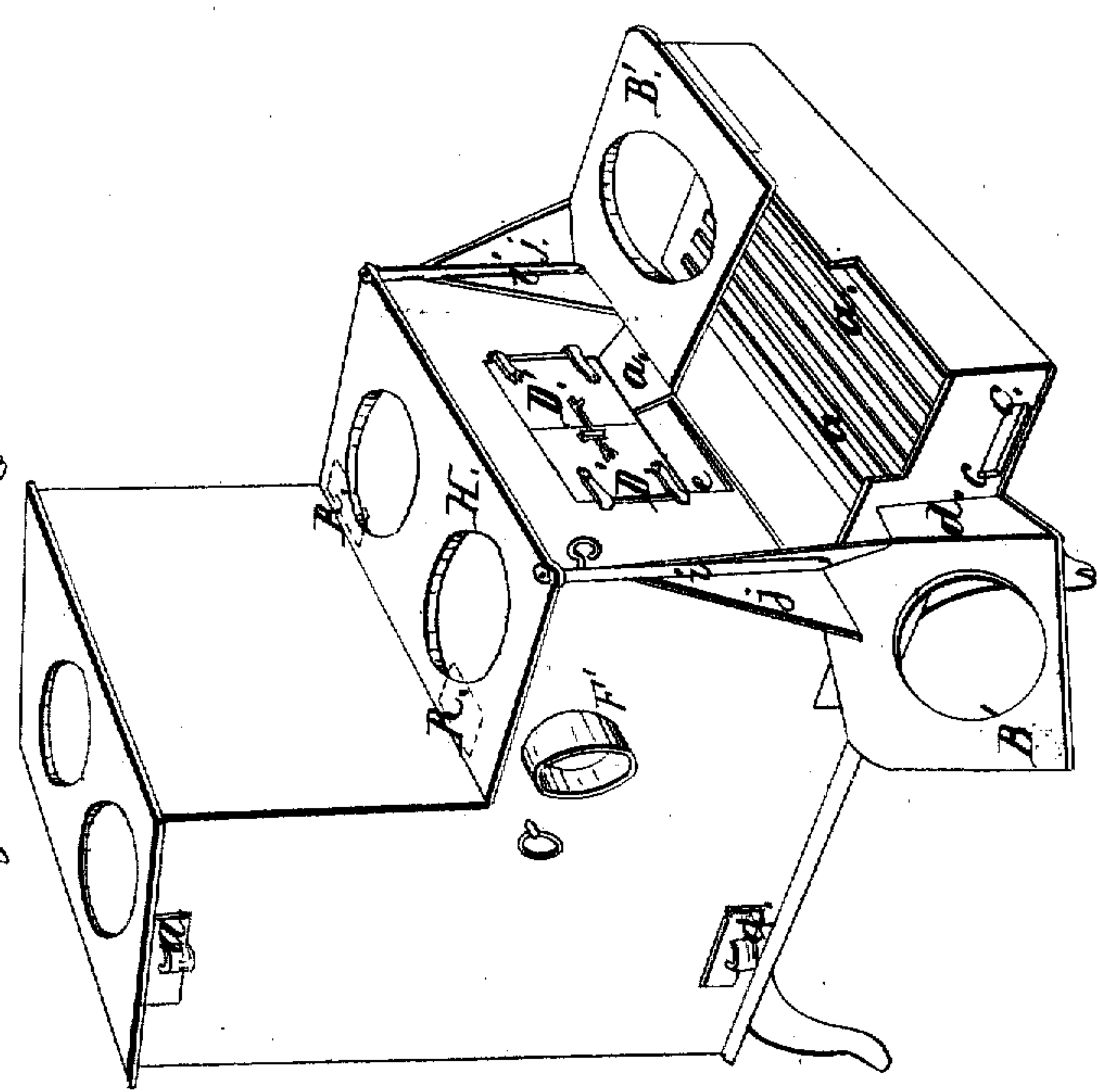


Fig. 4.



UNITED STATES PATENT OFFICE.

SAMUEL L. CHASE, OF WOODSTOCK, VERMONT.

COOKING-STOVE.

Specification forming part of Letters Patent No. 1,799, dated September 25, 1840; Reissued August 11, 1841, No. 35.

To all whom it may concern:

Be it known that I, SAMUEL LOGAN CHASE, of Woodstock, in the county of Windsor and State of Vermont, have invented a new and useful Improvement in the Manner of Constructing Stoves for Cooking and for Warming Apartments, which stove I denominate the "Rarefier Cooking-Stove;" and I do hereby declare that the following is a full and exact description thereof.

I sometimes construct my stoves with two, and sometimes with four, ovens, depending upon the extent of cooking which it is intended they shall be capable of performing; but whether containing two, or four, ovens the main principle, or mode of operation, upon which my improvement is founded, remains unchanged.

Figure 1, in the accompanying drawing, is a perspective representation of one of my four-oven stoves; A, being the front plate; B, the hearth; C, C', two of the ovens, the doors of which are removed, and D, the fire chamber. E, is a hinged cover that closes a compartment in which boilers, or other cooking utensils, may be placed; there being a perforated plate to receive them immediately over the fire chamber, as in most other cooking stoves. The other two ovens are at the back end of the stove on a level with C, C', and extending in length the width of the stove. Below the bottom plate D, of the fire chamber, is the compartment that I denominate the rarefier, which compartment constitutes a part of the flue through which the heated air is to pass before its exit through the stove pipe, and after it has traversed the respective flues which surround the ovens. *a, a, a*, are stoppers, that may be removed for cleaning these flues. The hearth B, has a sink in it for containing coals, and is furnished with bars *b, b*; and over these there is a swinging hearth B', furnished with boiler holes, as represented; this swinging hearth I generally divide into two parts in the manner represented in my two-oven stove, Fig. 4, it being thus rendered more convenient and manageable. *c, c, c*, are holes admitting air to the coals within the sink in the hearth, by which combustion may be kept up when the swinging hearth is in place, and the boiler openings in it covered; there is a notch *d, d*, in the back edge of this hearth, which notch, when the swinging hearth and

furnace door D', are closed, is embraced by a sloping projection *e, e*, on the furnace door, or the projection may be on the swinging hearth, and the notch or opening on the door, which constitutes a flue from the sink hearth into the chamber of combustion, through which vapors and smoke may pass. F, is the stove pipe, or escape flue, passing down through the two back ovens, and connecting below with the rarefier.

Fig. 2, shows the stove with one of the side plates removed, exhibiting the interior of the chamber of combustion; its top, or boiler, plate H, and the door D', leading into it being also removed. D, is its bottom, and G, its back plate. I, I, is the flue spaced denominated the rarefier and from this is a passage into the flue F, through an inclined flue *f, f*, at the rear end of the fire chamber; *g, g*, is a damper to regulate an opening leading directly into the flue F, which is to be opened when the ovens are not to be heated. The draft of heated air, after circulating around the oven flues is admitted into that denominated the rarefier through an opening shown by dotted lines, and marked P, which opening leads into it from the flue below, under the lower side oven P' Fig. 1. J, J, are two openings through which the heated air from the fire is to pass when the ovens are to be used; both these openings lead directly into the flue space between the lower and the upper ovens, and on each side of the flue F. These openings may also be furnished with dampers if preferred; but when the damper *g*, is opened for the direct draft, there will be little tendency to a draft through these openings. Sometimes, also, I make an opening at *h, h*, in the front, upper, right-hand corner of the chamber of combustion, which opening I govern by a damper, as in the two-oven stove, seen at R R, Fig. 4, and to be presently described; this, when opened, will allow the heated air to pass directly into the flue between the two side ovens, without passing the whole circuit of the flues. K, is the handle of a damper (shown at K, Fig. 3,) which damper when open leaves a communication from the flue above the ovens, into the escape flue F; the effect of opening this damper is to cause the draft to circulate around the upper ovens only. M, is an opening from the boiler chamber into the flue F, which when

the cover E, is turned down so as to close said space, allows the steam to escape into the flue F.

I will now show the course of the draft when the ovens are all in use, and from this the modifications produced by the respective dampers will be apparent.

Fig. 3, is a view of the back end, and of the oven side, of the stove (the outer plates and oven doors being removed to show the arrangement) and the course, of the draft through the flues, as indicated by the arrows. J, J, are the two passages from the fire chamber into the flue between the upper and the lower ovens; and I will here observe that this flue, and those also above the upper and below the lower oven, extend uninterruptedly between, over, and above, the back and side ovens, conjointly, just as though the two upper ovens were united in one, and the two lower ovens were, also, similarly connected; these ovens, however, are divided by the partition plates N, N'. From the openings J, J, the draft passes along between the upper and the lower ovens to the end flue O; thence to, and along, the upper flue O'; thence to the end descending flue O²; thence to the bottom flue O³; and along this to the opening P Fig. 2, from the fore end of said flue into the rarefier, or flue under the fire chamber; in this the air is reheated, and consequently rarefied, serving not only to promote the draft, but adapting the air to the purpose of heating any apartment, through which the flue F, may be carried, in a very effective manner.

Fig. 4, is a perspective view of a stove of the same kind, but with two ovens only. The sunk hearth, the swinging hearth, the apparatus for broiling, &c., are constructed substantially in the same manner as in the stove already described. The swinging hearth B', B', is divided into two parts, as before indicated. The boiler plate H, may be inclosed by a cover, like that marked E, in the four-oven stove, but this may be omitted, and it is not so represented. The top plate Q, is shown as having boiler holes, but these may be omitted, as they are in the four-oven stove. The rarefier under the fire chamber is similar to that under the four-oven stove, the draft passing into it exactly in the same way, after having circulated around the flues of the two ovens. The lowermost of these two ovens is on a level

with, and immediately behind, the fire chamber, and the other directly above it. The heated air from the fire chamber is admitted into the flue between these two ovens through openings R, R, leading from it into the flue space between the two ovens, which openings I regulate by dampers.

Fig. 5, is a back view of this stove, the back plate with the oven doors, which it sustains, being removed to show the course of the flues and of the draft. C, C', are the lower and upper ovens; O, the middle oven flue, into which the heated air passes from the fire chamber through the openings R, R, after which it traverses in the direction of the arrows, and escapes from the lower flue into the rarefier; and thence, by a device analogous to the flue f, f, in the four-oven stove, finds its way to the exit pipe F'; operating in all respects in the same way with it.

Having thus fully described the nature of my improvement, and shown how the same is carried into operation, and having in so doing shown and described many parts and devices, of which I do not claim to be the inventor, I now proceed to state what I do claim, and desire to secure by Letters Patent; viz:

1. The manner in which I have combined and arranged the flues, including the rarefier, as set forth; that is to say, the admitting the heated air from the fire chamber into the flue between the upper and the lower ovens; conducting it thence through the flue above the upper oven; thence down through the flue at one end to the flue under the lower oven; thence into the rarefying flue under the fire chamber; and thence into the exit pipe; all substantially as herein made known, and represented.

2. I claim, in combination, the arrangement of the respective parts of the hearth for broiling, and other cooking operations; which arrangement consists of the sunk hearth, furnished with the bars b, b, the openings c, c, for the admission of air, the swinging hearth, and the flue formed by the notch in said hearth, and the sloping projection at the lower edge of the furnace door, or on the swinging hearth.

SAML. L. CHASE.

Witnesses:

OEL BILLINGS,
C. P. MARSH.