

S. TEETS.  
 Ranges for Cooking and Heating.  
 No, 138,543.

Patented May 6, 1873.

Fig. 1

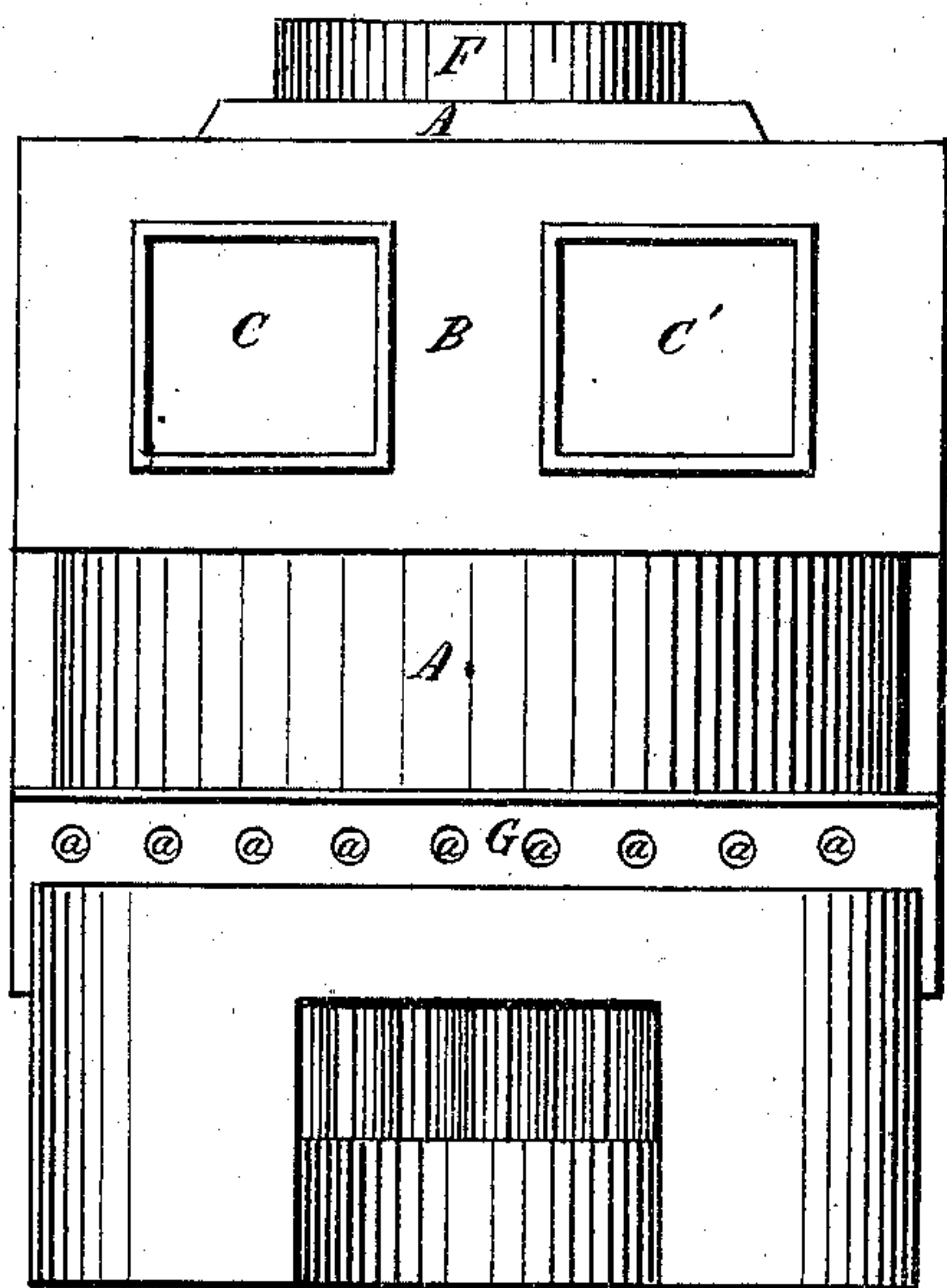


Fig. 2

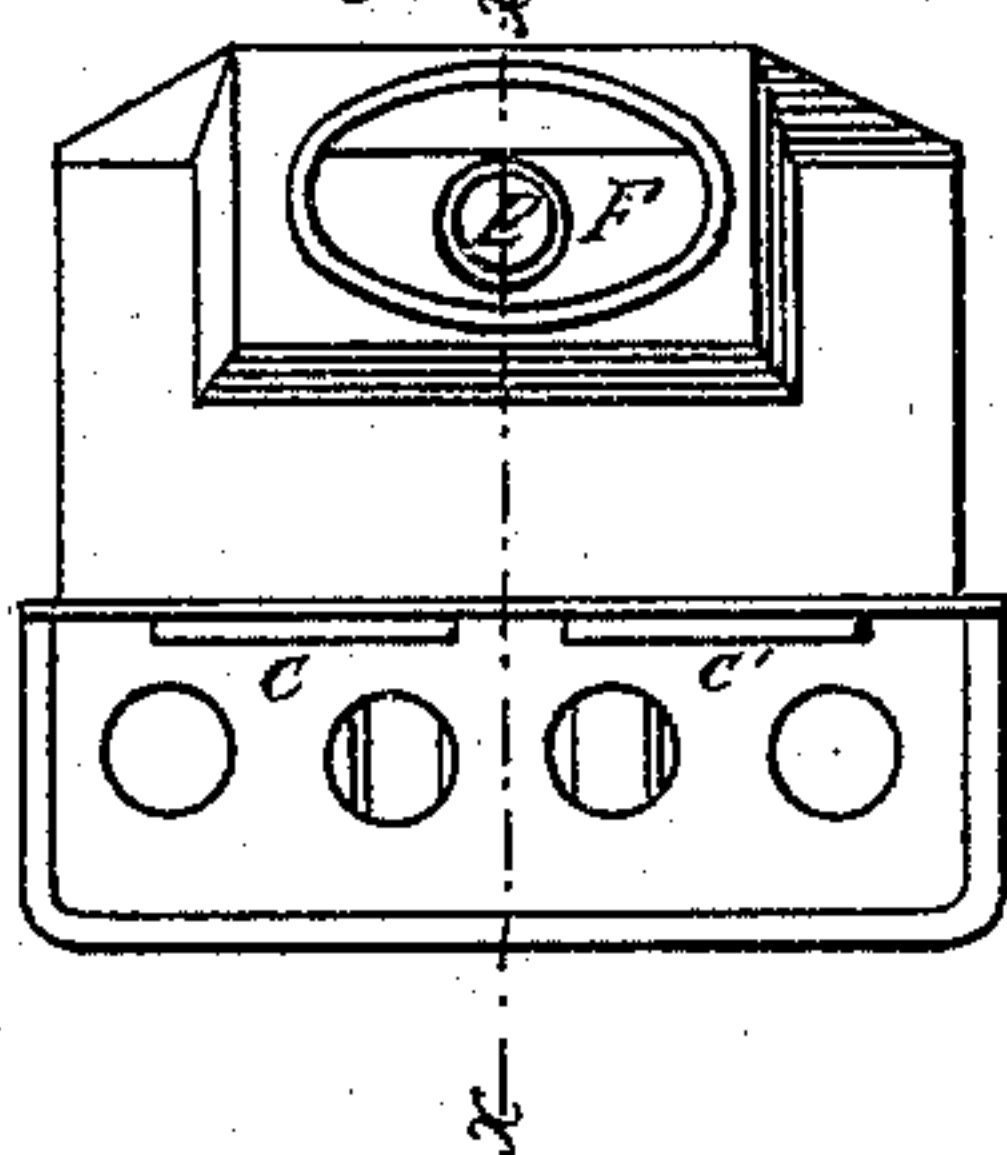


Fig. 3

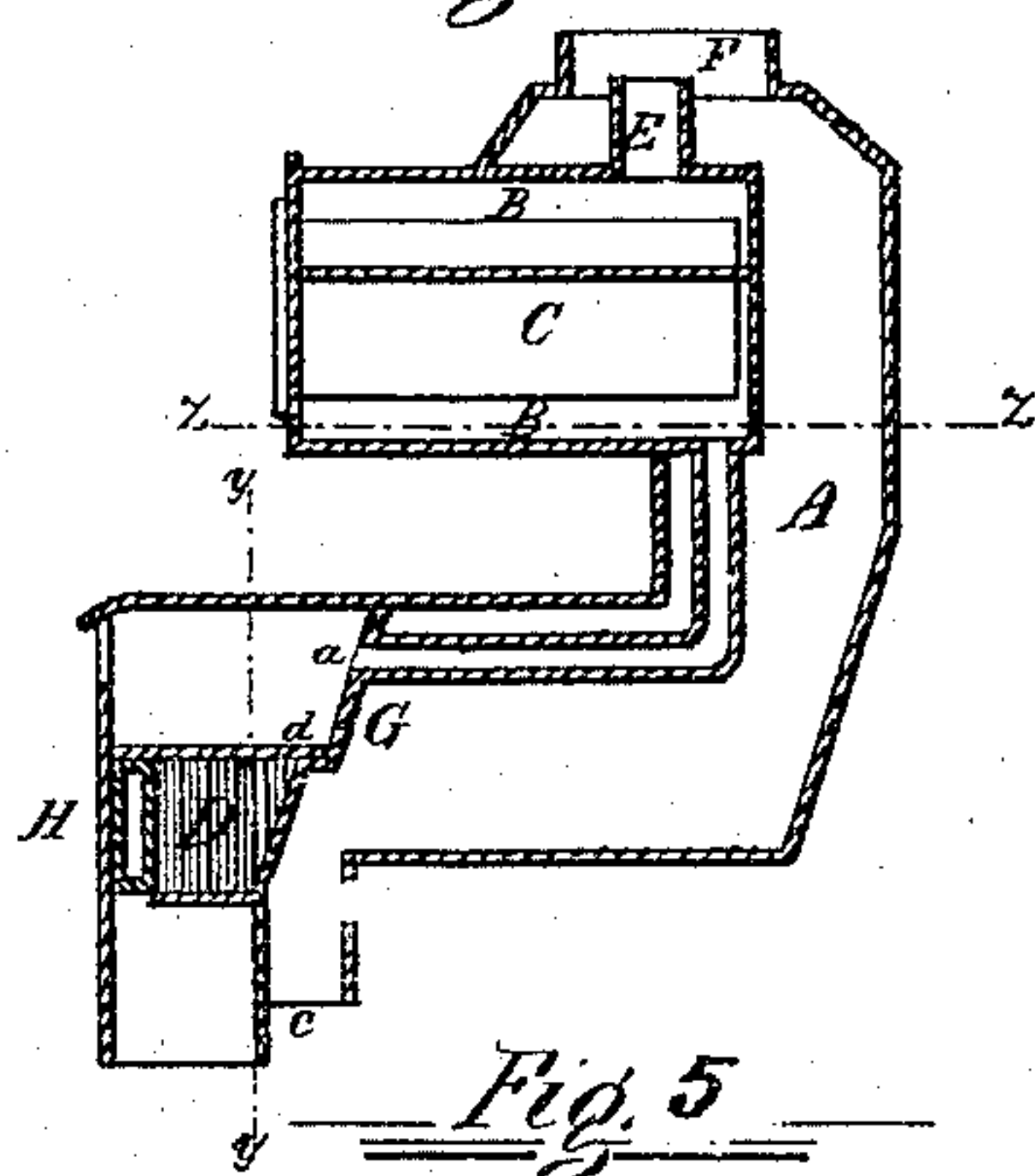


Fig. 4

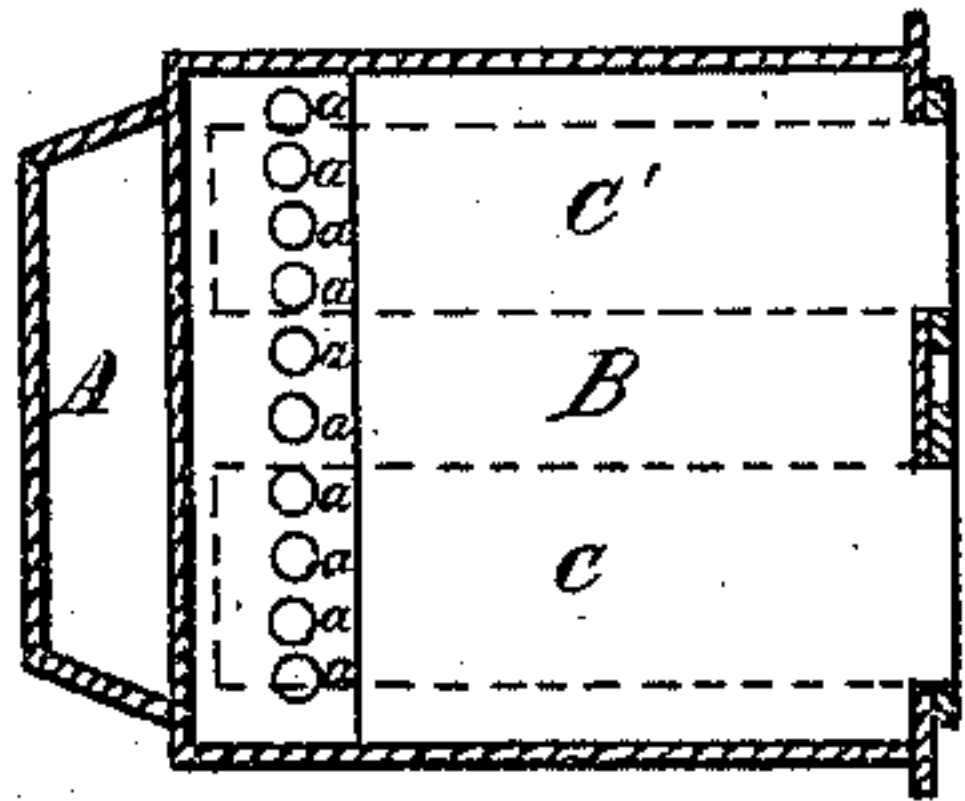
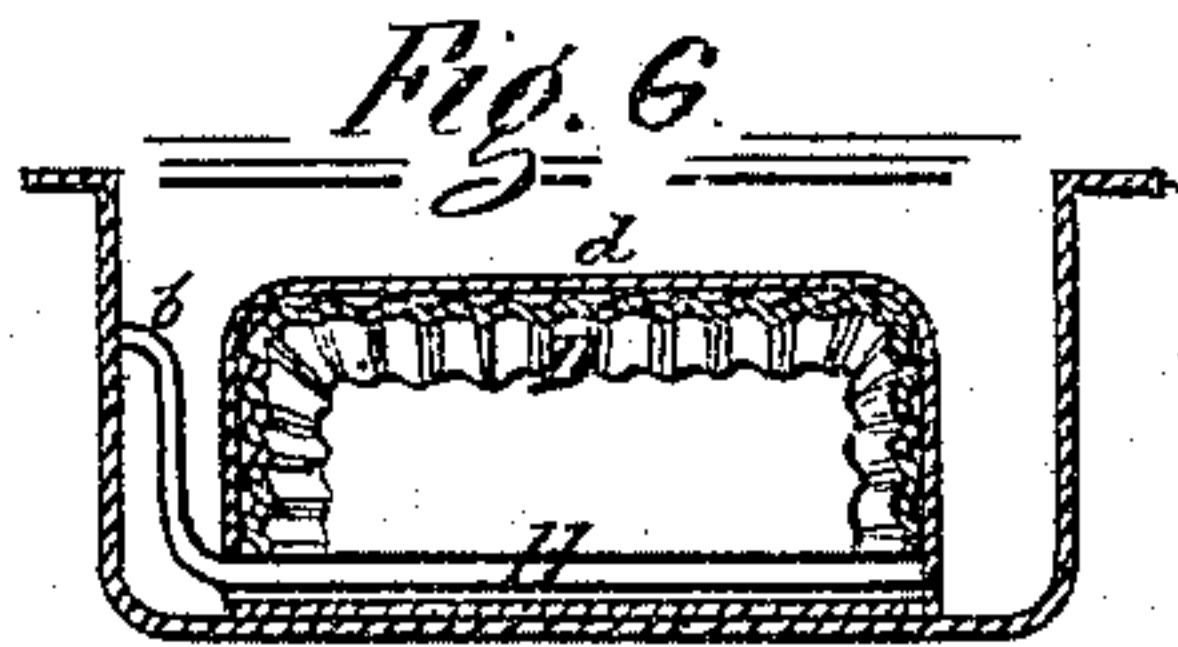
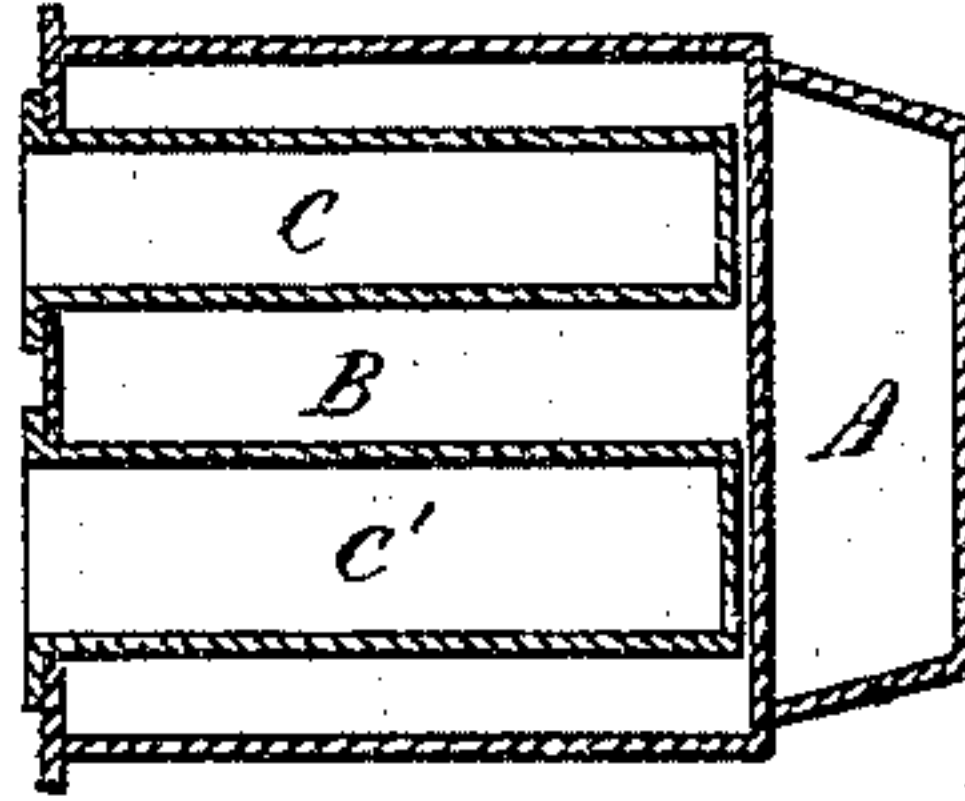


Fig. 5



Witnesses.

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# UNITED STATES PATENT OFFICE.

STEPHEN TEETS, OF NEW YORK, N. Y.

## IMPROVEMENT IN RANGES FOR COOKING AND HEATING.

Specification forming part of Letters Patent No. 138,543, dated May 6, 1873; application filed January 23, 1873.

*To all whom it may concern:*

Be it known that I, STEPHEN TEETS, of the city, county, and State of New York, have invented an Improved Elevated-Oven Range and Heater, reference being had to the accompanying drawing forming part of the same.

My invention relates to an elevated-oven cooking-range and heater combined, in which the products of combustion pass out of the range through a series of tubes placed a short distance apart along the entire length of the range opening out of the combustion-chamber above the fire-pot at the rear of the same, and thence running back to the rear of the range; and thence turning upward and opening into and near the rear of the oven-heating chamber; and thence out through the top of the said chamber into the smoke-pipe, while the air to be heated enters immediately at the bottom of the range around the entire outer surface of the fire-pot, and passes directly upward through a heating-flue, which, occupying the entire length of the range, is made comparatively narrow in the transverse direction, and inclosing and substantially conforming to the course of the heating-pipes *a*, passes upward at the rear of the oven-chamber into an air-pipe which surrounds the smoke-pipe, by which means the air passing in at the bottom is brought and made to circulate immediately in contact with a large extent of heating-surface, while it touches the walls of the oven-chamber only at the rear end. By this arrangement there results an efficient and useful heating of air, without impairing the cooking qualities of the range.

Figure 1 is a front elevation of a range embodying my invention, the lower front of the range being a vertical section through the line *yy*, Fig. 3, and showing the openings of the heating-flues over the fire. Fig. 2 is a top view of the heating-range. Fig. 3 is a central sectional side view of the same on the line *xx*, Fig. 2. Fig. 4 is a horizontal sectional view of the elevated oven-chamber on the line *zz*, Fig. 3, showing the openings of the heating-flues through the bottom of the same. Fig. 5 is a horizontal central sectional view of the same, showing the arrangement of the ovens within the chamber. Fig. 6 is a top view of the combination of the fire-pot and water-

heater, showing the general arrangement and form of the fire-pot and the water-heater at the front of the same.

Similar letters of reference indicate similar parts.

A is the air-heating flue occupying the entire length of the range, and extending from the opening *c* at the bottom upward at the rear of the range into the pipe F, whence it may be distributed through the house. B is the elevated oven-chamber, and C C' are the ovens. *a a a* are the heating-flues, which have their lower openings over the fire through the plate G, and pass back through the hot-air chamber A, and upward into the oven-chamber B, as shown in Figs. 3 and 4. These heating-flues are sufficient in number when placed a short distance apart, as shown in the drawing, to occupy substantially the entire length of the combustion-chamber over the fire-pot, so as to present the largest extent of heating-surface practicable to the air in the heating-flue A. It is made comparatively narrow in the transverse direction, so that the air in passing through it will necessarily be brought in contact with the heating-surfaces. The heat, smoke, and other products of the combustion in the fire-pot pass through these heating-flues *a a a*, thus making them very hot, and consequently warming the air circulating through the flues A, and thence up into the oven-flues B, and over and around the ovens C C', imparting heat to them, and out through the smoke or draft flue E, which passes up through the hot-air flue F into the chimney. H is the water-heater, with its pipes *b* placed at the front of the fire, and made with suitable grooves on its inner sides near the ends, so that the fire-pot D when put in place will fit snugly in position, its front ends passing into the grooves in the water-heater, and hold it firmly and securely against the front of the range and forward of the fire.

By thus arranging the water-heater it does not interfere in any way with the heating-flues *a a a*, above described, while it has the benefit of the full force and effect of the heat of the fire, the same as if it were constructed and arranged as a "water-back," as is now the custom at the rear of the range-fire. The additional advantage is also gained of having the



pipes *b* conveying water to and from the water-heater at the front of the range, and exposed to view for nearly their entire length, so as to be much more readily and conveniently inspected or repaired than if hidden or embedded within the range at the back.

D is the fire-pot, preferably of cast iron, and made somewhat conical or tapering in its form from its top to its bottom, and with a flat projecting rim at its top arranged to rest upon a support within the range, so that it may be conveniently and easily removed and replaced without disturbing the water-heater or other parts of the range.

As will be seen, the air to be heated in this range is caused to pass through what is properly a narrow flue rather than an extended chamber, such flue at the lower end having for one of its walls the entire rear and side external surfaces of the fire-pot, above which it is made to inclose as many heating-tubes as can be made to occupy the space over and at the rear of the fire-pot, and above these tubes the air passes up at the rear of the oven-chamber, touching its wall only at the rear, and the part most heated by the heat from the tubes *a*, leaving the top, bottom, and ends of the said chamber unaffected by the cold air. There is here secured a direct upward draft from the fire into the smoke-pipe; also a direct upward movement of the heated air throughout its

whole course, these being the most favorable conditions possible for efficiency and economy in both cooking and in heating air.

I am aware that heater-ranges have been made in which a chamber for heating the air has been placed in the rear of the fire, and that smoke-flues have been made to pass through this chamber; but I am not aware that any heater-range has been before constructed in the manner herein described.

What I claim, and desire to secure by Letters Patent, is—

An elevated-oven heater-range in which the series of heating-tubes *a* occupying the entire length of the range, opening above and at the rear of the fire-pot D, and without being deflected downward extending to and opening into the oven-chamber B, the air-heating flue A occupying the entire length of the range, opening at the bottom around the entire rear and side surfaces of the fire-pot D, inclosing the heating-tubes *a*, and passing upward at the rear end only of the oven-chamber B, together with the oven-chamber B, the oven C, one or more, the smoke-pipe E, and the hot-air pipe F, are all combined and operated substantially as specified.

STEPHEN TEETS.

Witnesses:

A. S. FITCH,  
J. P. FITCH.