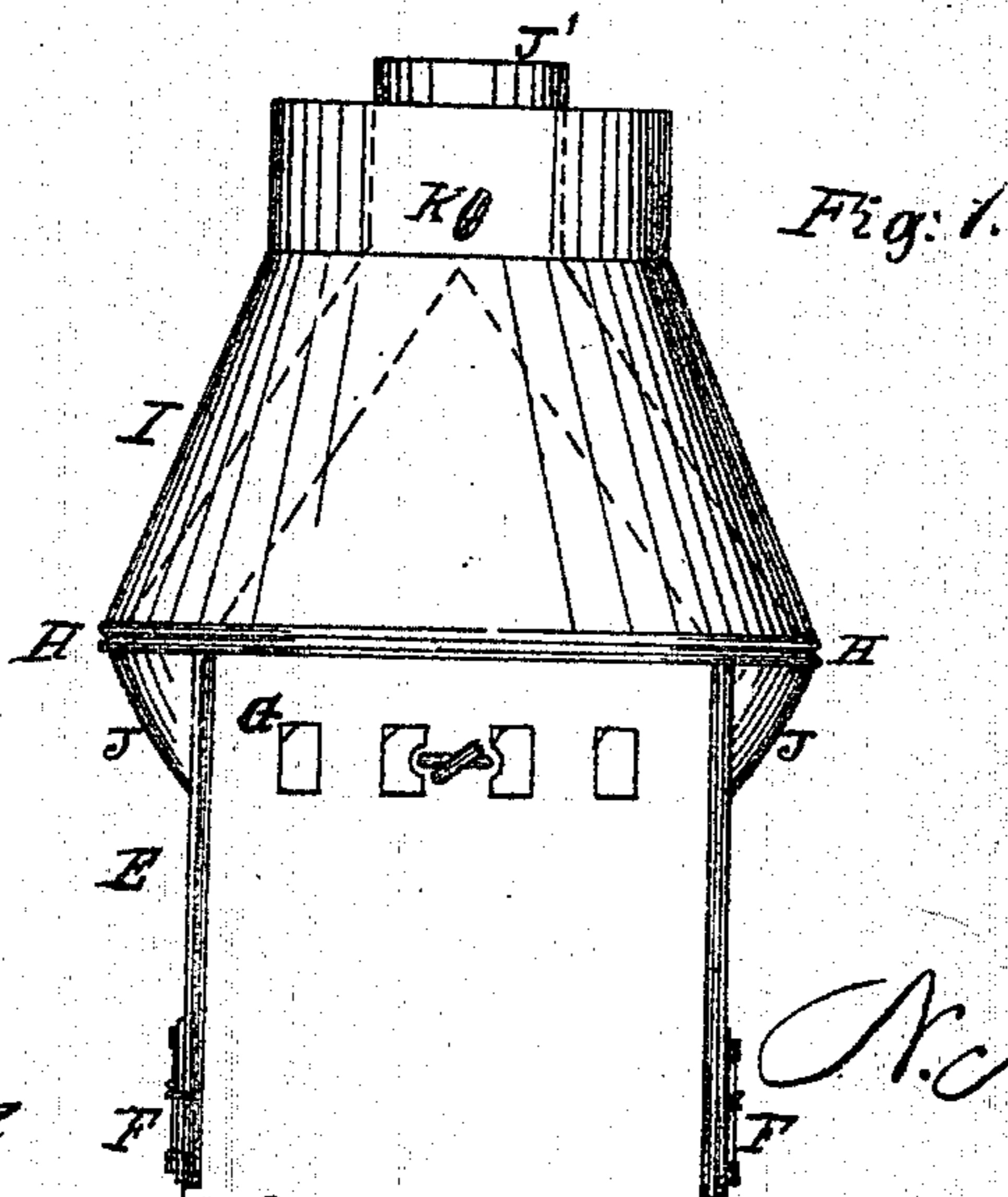


N. A. Boynton.
Range & Heater.

Nº 71446

Patented Nov. 26, 1867.

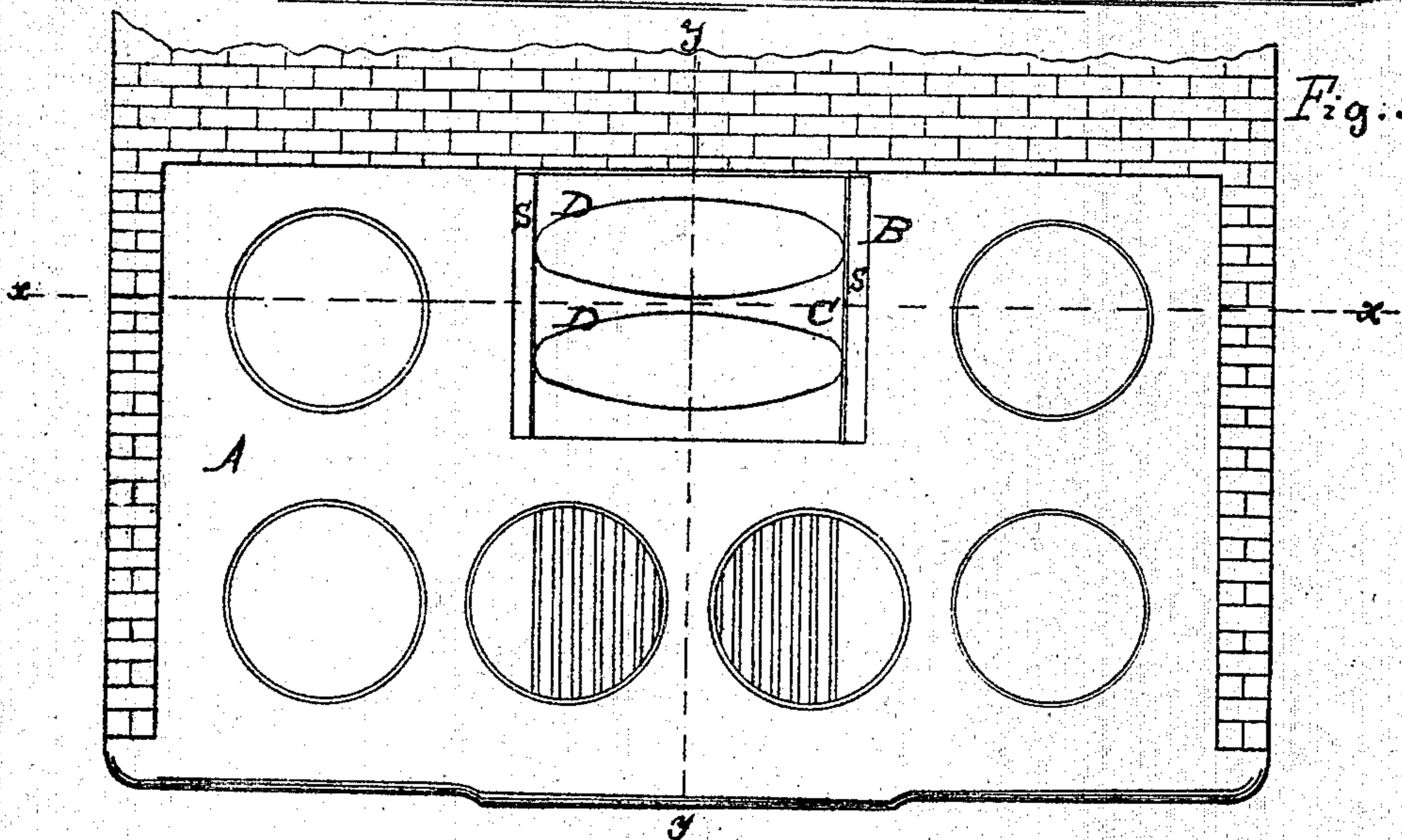
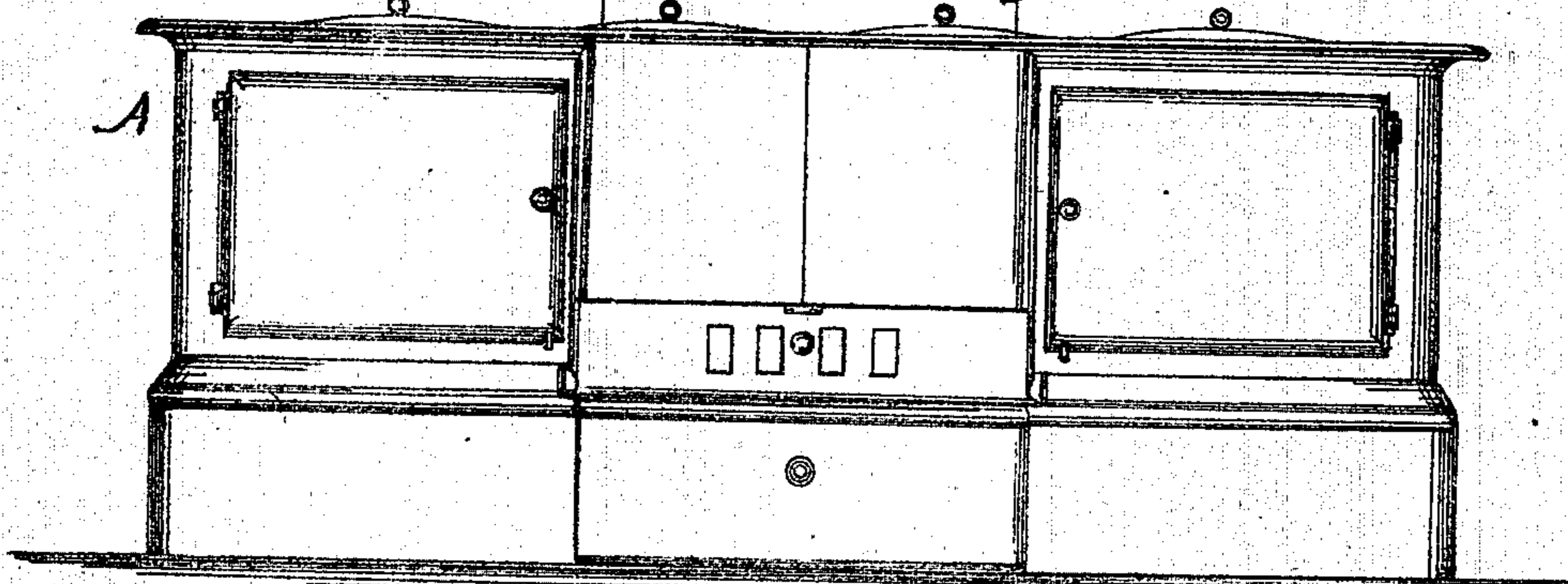


Witnesses

W. Keaff
Gusta Berg

Inventor

N. A. Boynton.



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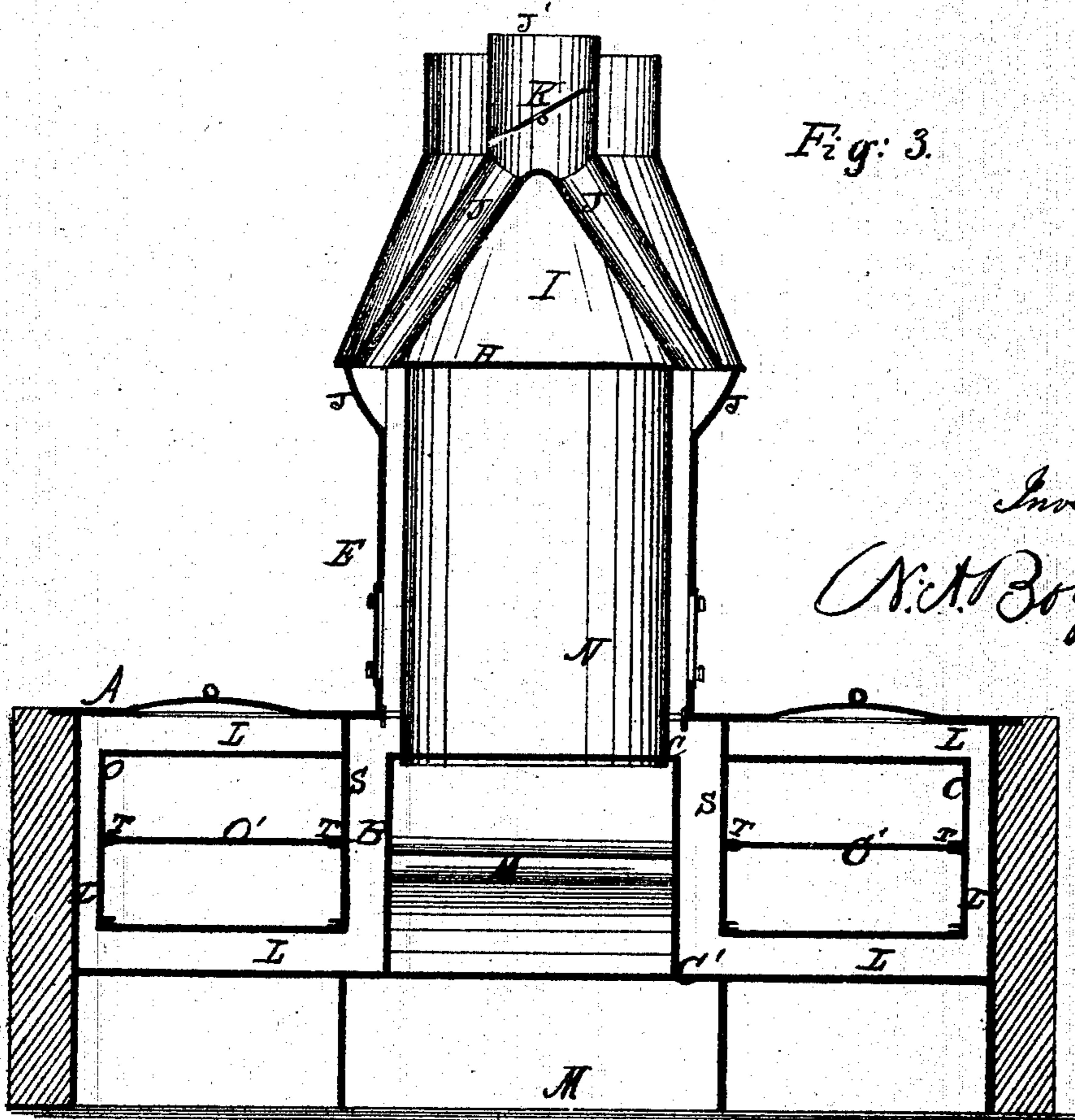
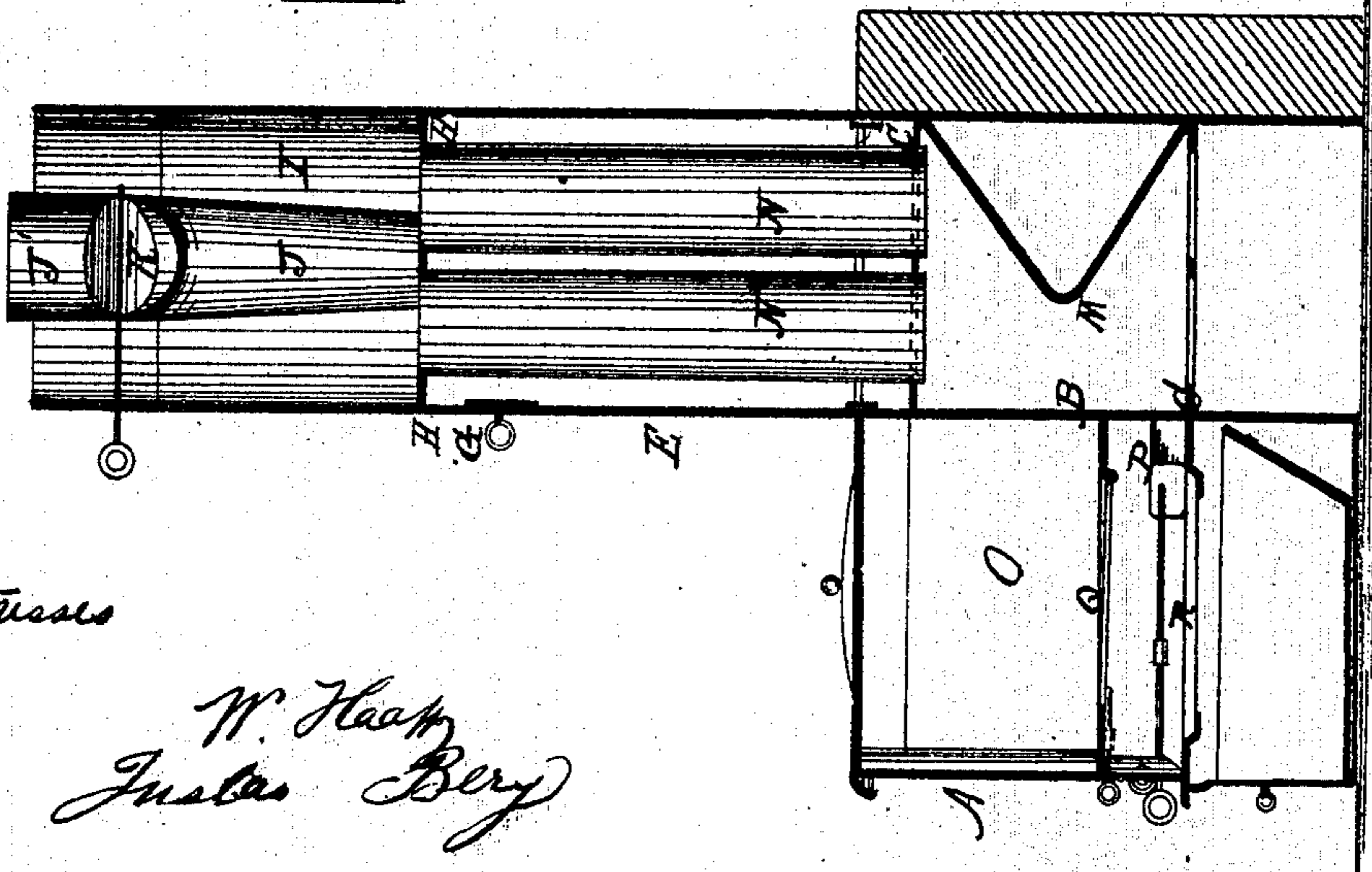


Fig. 3.

Inventor.

N. A. Boynton

Fig. 4.



Witnesses

W. H. Clark
J. A. Berg

United States Patent Office.

NATHANIEL A. BOYNTON, OF NEW YORK, N. Y.

Letters Patent No. 71,446, dated November 26, 1867.

COMBINED RANGE AND HEATER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, NATHANIEL A. BOYNTON, of 234 Water street, in the city, county, and State of New York, have invented a new and useful Improvement in Combined Ranges and Heaters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1, sheet 1, is a front elevation of my combined range and heater.

Figure 2 is a plan of the range, the heater being left out of view, but the space provided for it in the back central part of the range being shown.

Figure 3, sheet 2, is a vertical section in the plane *x x* of fig. 2.

Figure 4 is a vertical section in the plane *y y* of fig. 2.

This invention relates to a combination of a heater with a range, and consists in a novel construction and arrangement of several parts thereof, as hereinafter set forth.

The letter A designates a range, whose interior or exterior arrangement or construction may be varied to suit the maker in all other parts saving those which are involved in my invention. The places of the ovens are seen at O O, and the smoke or flue-passages around said ovens are designated by the letters L L; the fire-chamber being in this example in the middle of the range, so as to allow an oven to be placed on either side thereof, but the oven-space may be arranged on only one side of the fire-chamber, if desired. Below the grate Q is an ash-sifting grate, R, placed in the upper part of the ash-chamber, for the purpose of catching pieces of fuel that fall from the grate, and permitting only ashes to fall into the ash-drawer. The sides of the ash-chamber have openings P, which enable one to clean the bottoms of the smoke-flues L, the said openings being shut when the range is in use. The heater is located in the rear part of the range, behind the back wall of the fire-chamber, and between the rear ends of the ovens, as shown in the drawings, provision being made for it by a peculiar construction and arrangement of that portion of the range. The letter B designates a well or opening made vertically through the back part of the range behind the fire-chamber. The bottom of said well is formed by an extension, C', of the same plate that forms the bottoms of the flues L, so that the mouths of said flues are next to the upper surface of plate C'. Within said well B, I place a hot-air box, C, that extends nearly across the well from front to rear, and which in length and height is less than the dimensions of the well, thereby leaving a flue-space, S S, at each end, between it and the sides of the ovens, and also a flue-space above the top of box C, where the products of combustion are allowed to enter between and circulate around the air-pipes, hereinafter described. The interior of the box has an angular deflector, M, that projects forward from its rear side, its upper and lower surfaces being inclined, as shown in the drawing, so as to meet about midway of the box. One object of the deflector is to increase the radiating surface of the box. The bottom edges of the box rest upon the lower plate C', which is perforated to allow a full supply of fresh air from below to enter the box. The space below the bottom plate C' is put in communication with the atmosphere by suitable pipes, (not here shown.) The top of said box is perforated, as shown at D D, fig. 2, to receive the lower ends of air-pipes N N, that open into the box above the deflector. The box is here made rectangular in shape, but it can be of any shape desired. It will be observed that said box is so made and arranged that the air therein is directly exposed to the heat radiated from the back of the fire-chamber, and that its ends are directly opposite the mouths of the flues L, the flue-spaces S S, through which the products of combustion go while ascending towards the top of the well B, being arranged between the ends of the box and the sides of the ovens, so that both the ovens and also the box are exposed to the heat contained in said products, the heat being thereby greatly economized, and made useful in warming the air that goes to the heater, without diminishing the action of the heat on the sides of the oven. It will be observed that by the construction and arrangement herein shown, the efficiency of the range for cooking or baking is not interfered with or impaired, the well or opening B, which contains the air-box C and air-pipes N, being isolated or separated from the fire by the rear wall of the fire-chamber, and being so placed and arranged with respect to the ovens, that the products of combustion reach the well, and commence their action in heating the air only after they have completed their course around the ovens. The air-pipes N may be one or more in number, as desired. They are fitted nicely in the perforations D of the

top plate of box C, so as to make tight joints, and are supported in their vertical positions by any suitable stays according to the judgment of the maker. Said pipes are extended above the said well upwards into an envelope, E, which rises from the range, and encloses the edges or top of the well, so as to form, in conjunction with said well, a continuous vertical smoke-discharge flue, within which the series of air-pipes of the heater are enclosed. The front upper part of the envelope has a register, G, which enables one to moderate the energy of the fire by admitting air above it, and the sides of the envelope are provided with openings closed by doors F F, for the purpose of giving access to the interior when it is desired to clean the flue of soot. The top of the envelope is covered by a top plate, H, which separates it from an upper envelope, I, whose general form is conical, said plate H being perforated to receive the upper ends of the air-pipes N, which consequently communicate with the space enclosed by said envelope I. Said top plate is also perforated to receive the lower ends of pipes J J, which branch downwards from the main smoke-exit flue J', and communicate with the smoke-space of the envelope E, as shown most clearly in fig. 3, the said envelope E being enlarged at its sides where it receives said branch pipes, so as to facilitate the passage of the products of combustion, and avoid the contraction of the flues at those points. The exit-pipe J' has a damper, K, and the area of said pipe and the area of its branches should be equal to the area of the smoke-space in the envelope E, so as not to obstruct the draught. It will be observed that the air-pipes below the line of the plate H are enclosed by the smoke-flue, and that, after they pass above the plate, the relative positions of the air and smoke-passages are changed, the latter being then made to pass upwards through the air-space, as is clearly shown in the drawings. From the upper end of air-passage I, the hot air is conducted to the places where it is required, by means of suitable branch pipes in the usual way. The letters O' designate perforated or open-work oven slides or racks supported in grooves T T, formed on the sides of the ovens O, extending to the fronts of the ovens, so as to allow the racks, when the oven-doors are open, to be drawn outwards, and be there held and supported in the grooves, the object being to enable the cook to withdraw articles wholly or partly from the oven, and yet keep them at or near its mouth, where they will be kept warm, without danger of being cooked too much. The racks also enable the cook to expose articles to a gentle heat before the open oven. Several sets of grooves may be arranged in the ovens at varying heights.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The deflector M, in the air-box C, in combination with the air-flues N, substantially as shown.
2. I also claim in combination the air-pipes N, envelopes E and I, and smoke-flues J, substantially as shown.

N. A. BOYNTON.

Witnesses:

J. VAN SANTVOORD,
HERBERT G. HULL.