

J. McCLOSKEY.

Cooking Range.

Patented June 9, 1868.

No. 78,751.

Fig. 2

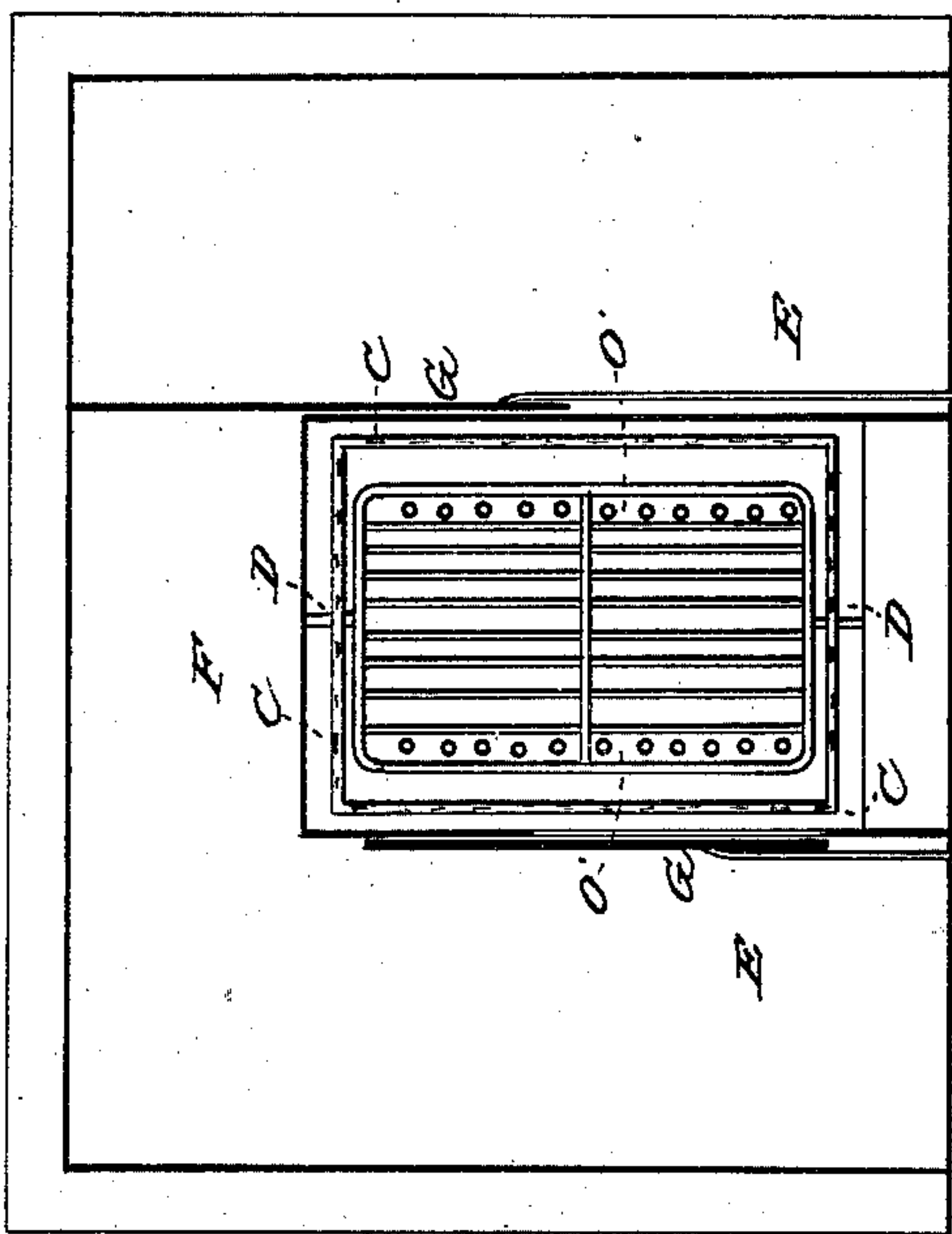


Fig. 4

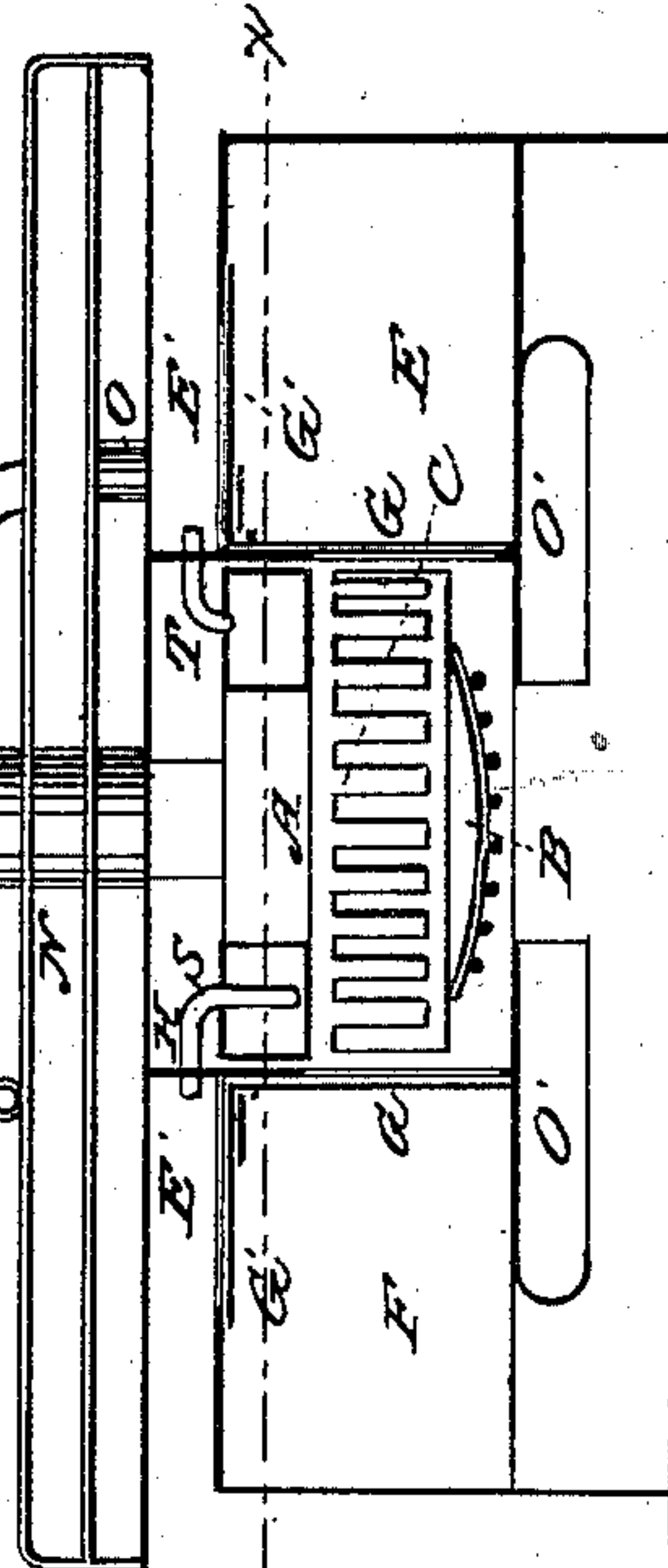


Fig. 1

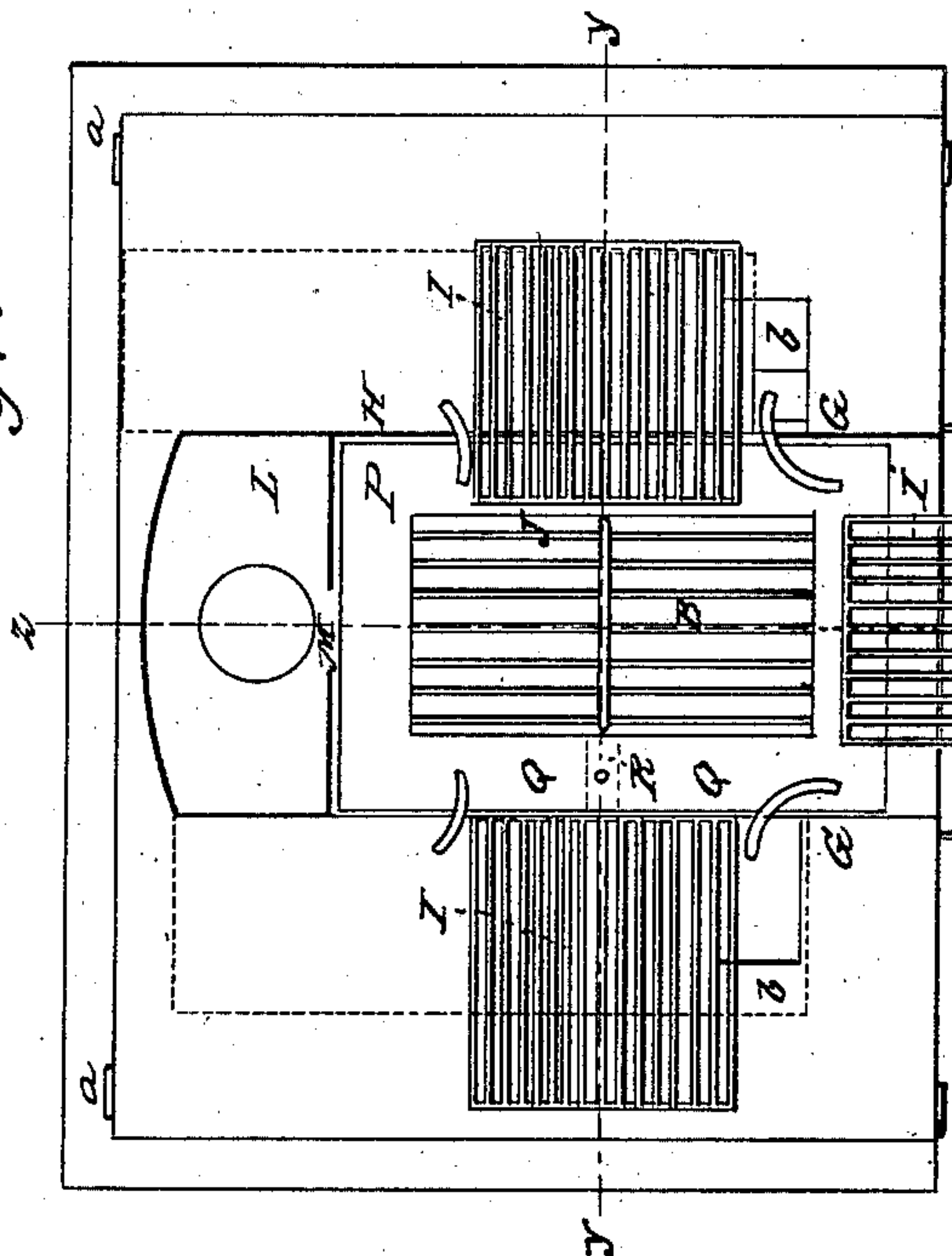
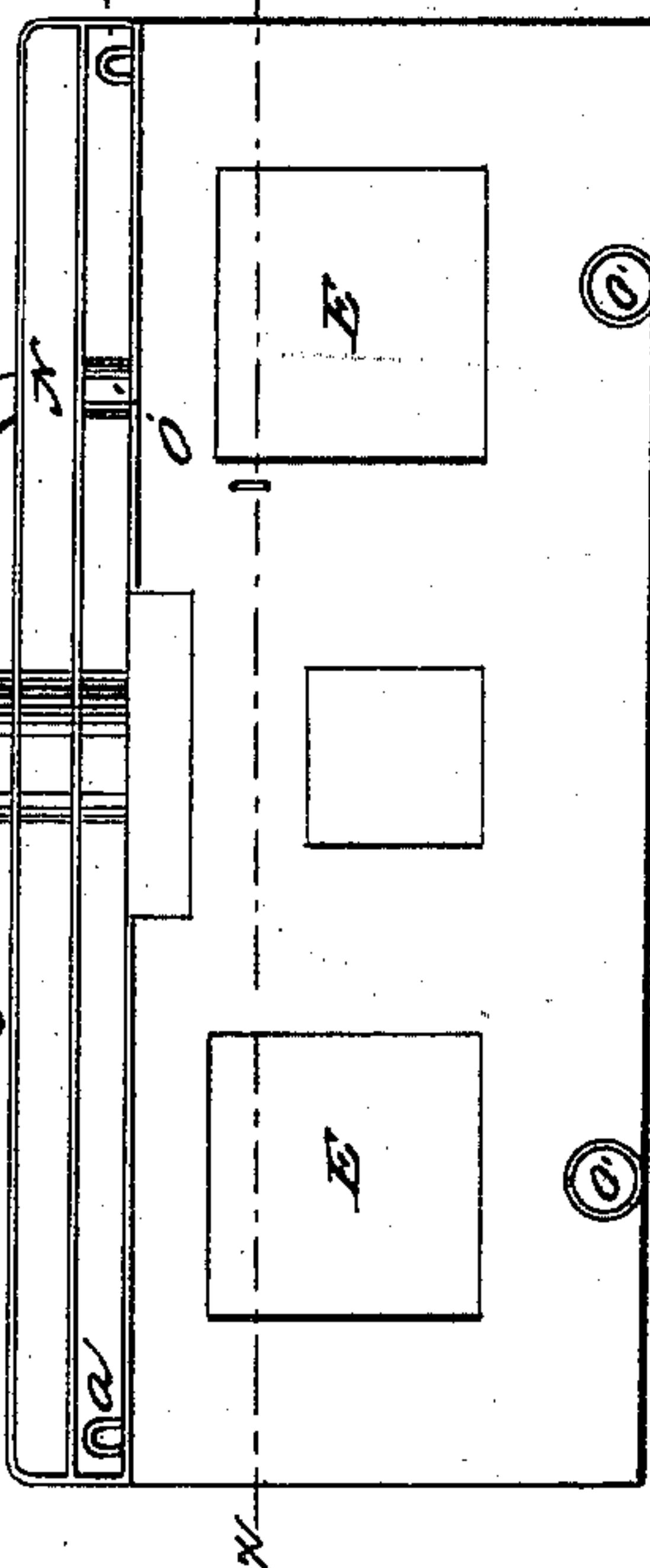


Fig. 3



Witnesses:  
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Inventor:  
J. McCloskey  
Per M. M. C. Attorney

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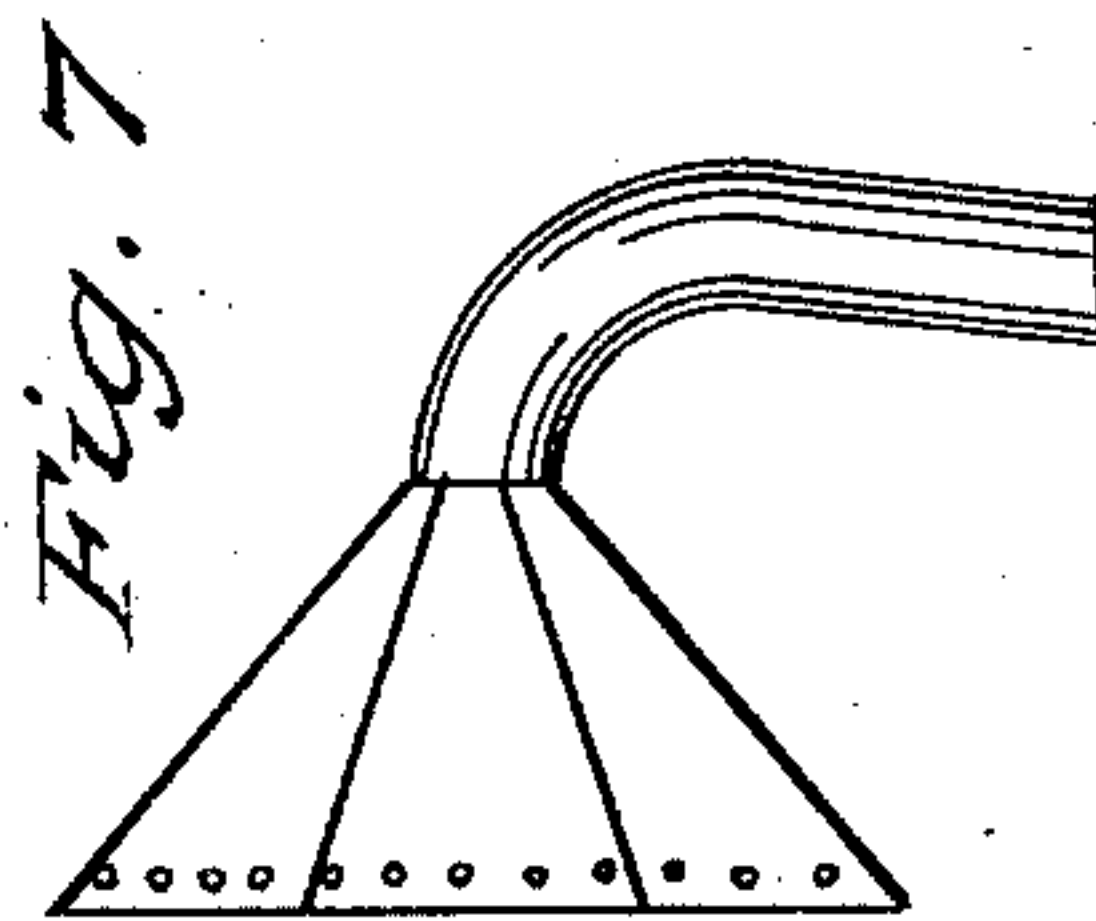
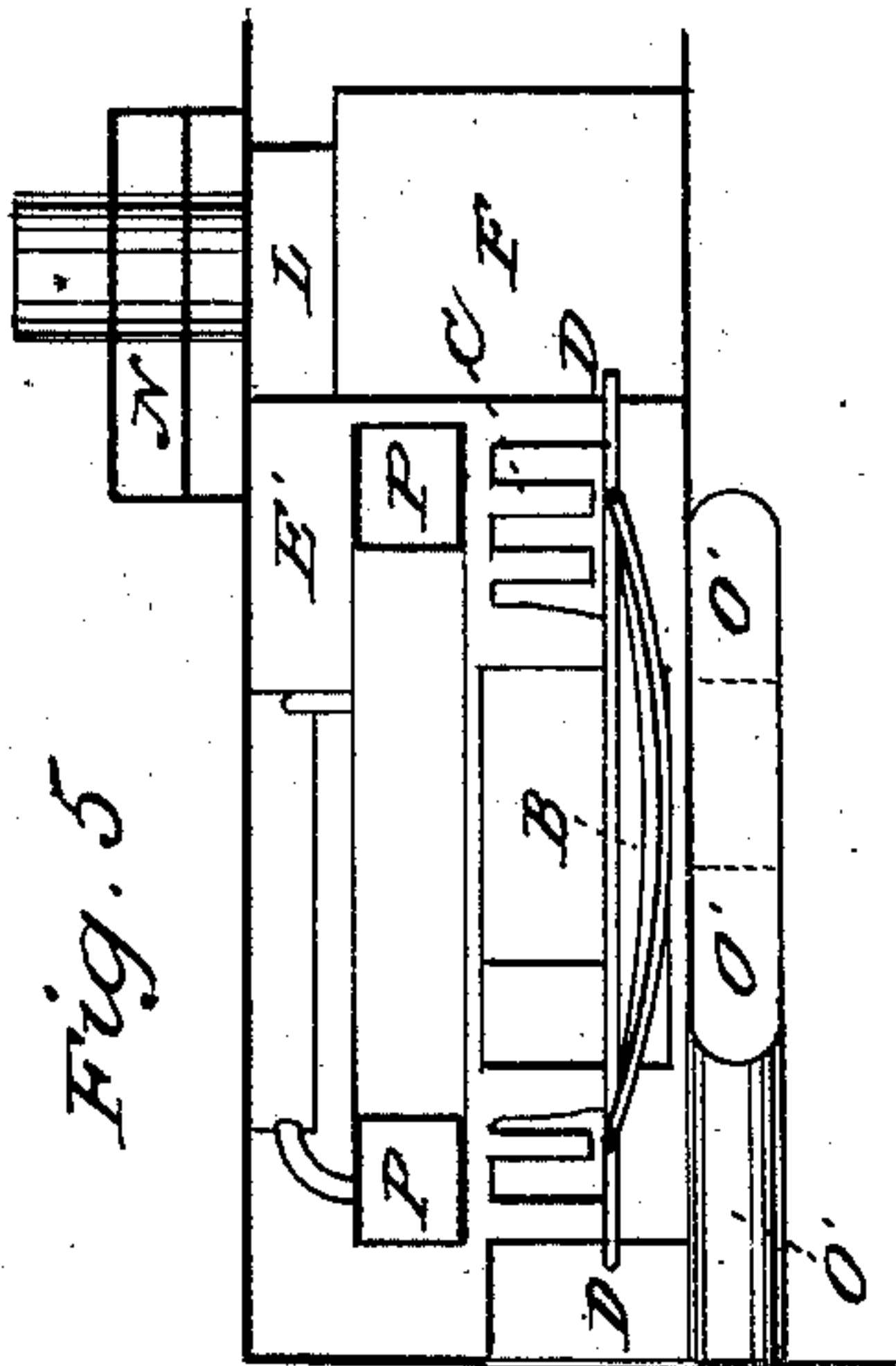
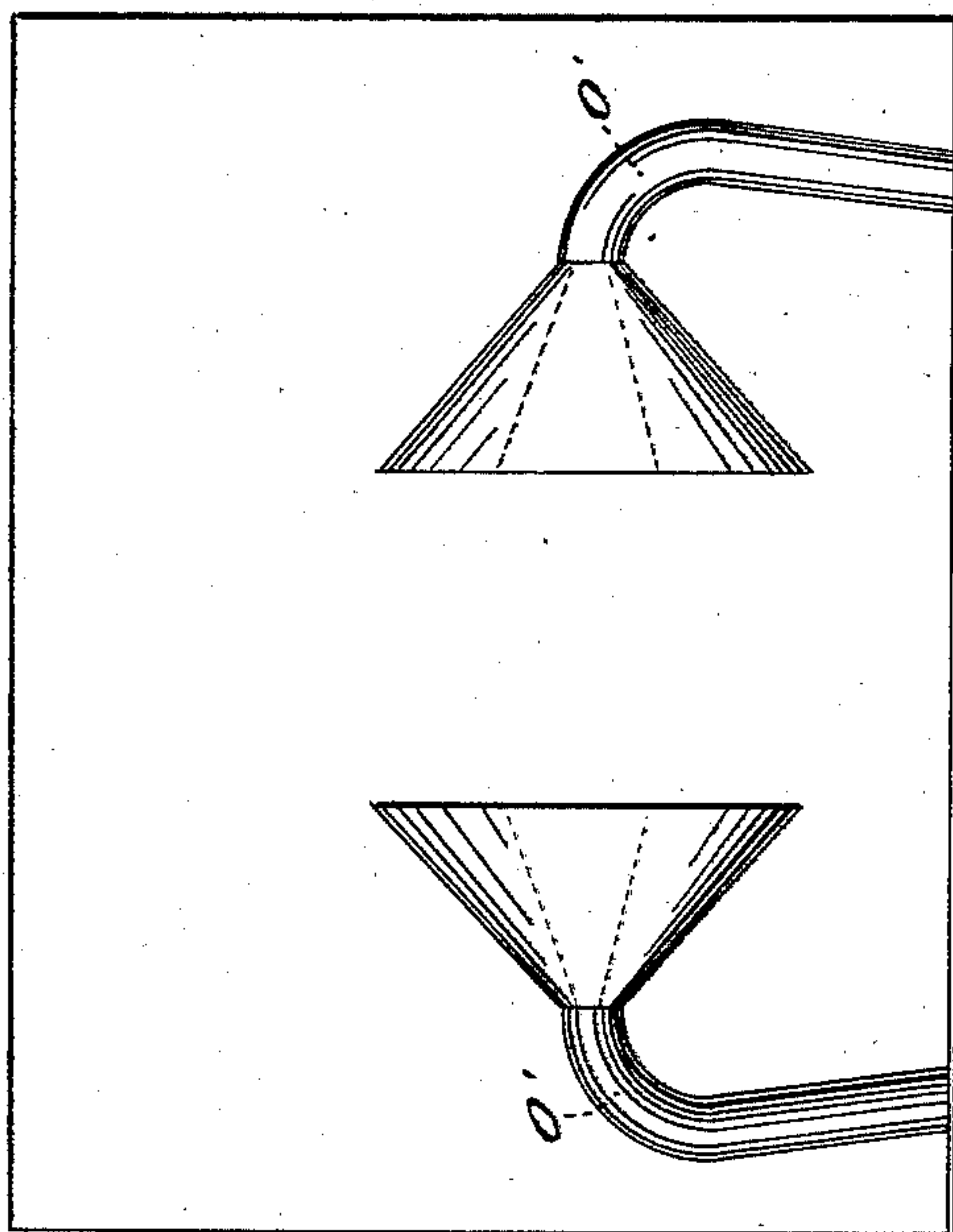


Fig. 6



Witnesses:  
J. M. Huntington  
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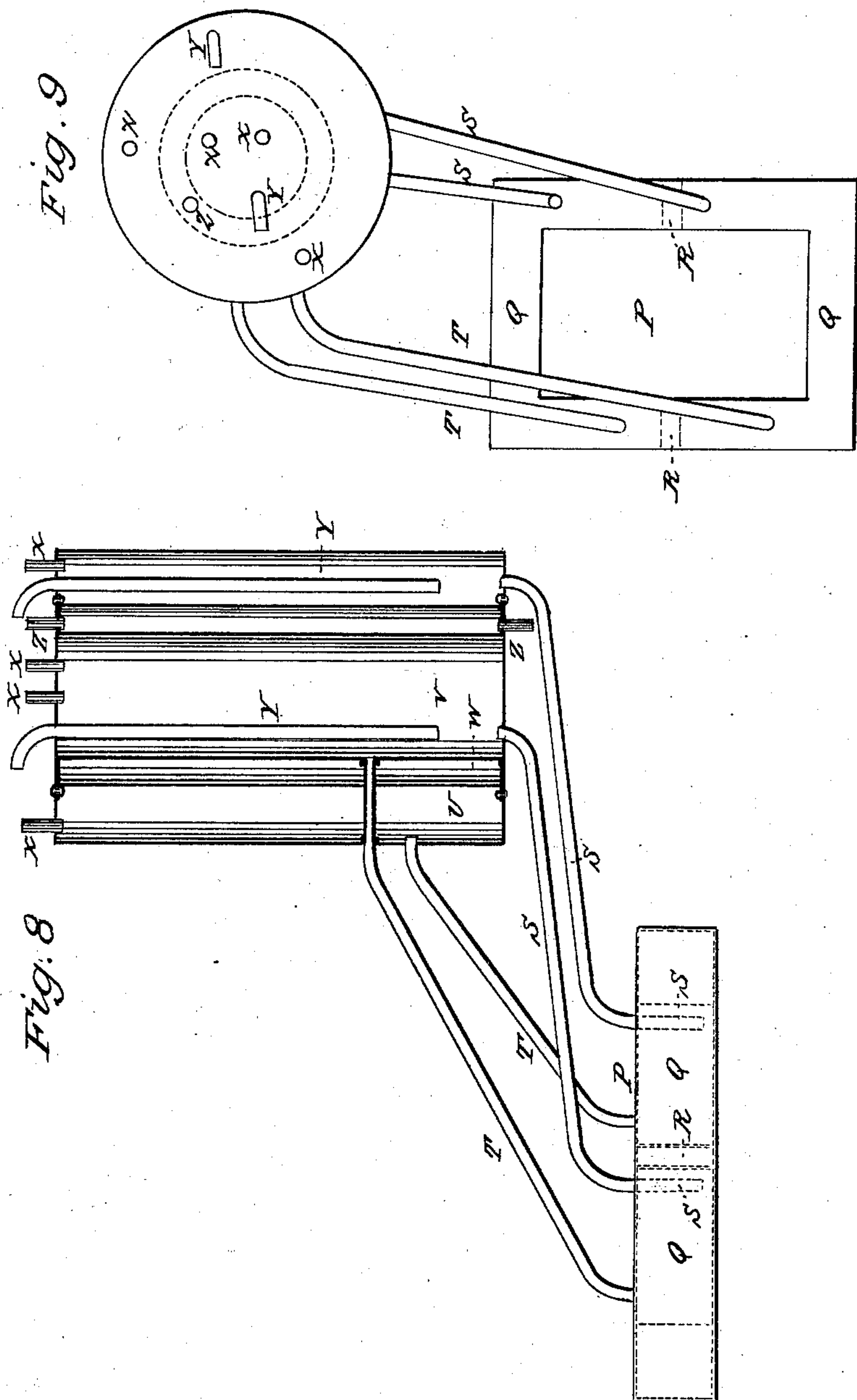
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Cooking Range.

3 Sheets—Sheet 3.

No. 78,751.

Patented June 9, 1868.



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# United States Patent Office.

JOHN McCLOSKEY, OF NEW YORK, N. Y., ASSIGNOR TO HENRY MCGUCKIN,  
OF SAME PLACE.

*Letters Patent No. 78,751, dated June 9, 1868.*

## IMPROVEMENT IN COOKING-RANGES.

*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, JOHN McCLOSKEY, of the city, county, and State of New York, have invented a new and useful Improvement in Ranges; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1, sheet 1, is a plan of a range made according to my invention, its cover being removed, and it being shown separate from its hot-water cylinders.

Figure 2 is a horizontal section through the ovens and fire-chamber, on the line *x* of fig. 4.

Figure 3 is a front elevation.

Figure 4 is a cross-section, on the line *y* of fig. 1.

Figure 5, sheet 2, is an elevation of a vertical section, on the line *z* of fig. 1.

Figure 6 is an under side view.

Figure 7 is a detailed view of one of the air-pipes *O'*.

Figure 8, sheet 3, is a sectional elevation of the water-back detached from the range, and of the hot-water cylinders.

Figure 9 is a plan of the water-back and cylinders.

This invention relates to ranges for culinary and heating purposes; and it consists, among other things, in the construction of the grates of the fire-chamber, the bottom grate having curved bars, which make it concave in one position and convex when turned over. It consists, further, in placing vertical grates all around the fire-chamber, a little distance from its sides, so as to leave an air-space between its sides and the vertical grates. It consists, further, in making openings in the sides of the ovens next to the fire-chamber, and in controlling such openings with dampers, operated from the front of the range. It also consists in connecting the ovens by a hot-air chamber, extending behind the back of the range. Another feature is forming a hot-air space above the back part of the range, which space communicates with the ovens, by means of a pipe that is controlled by a damper, said pipe leading into the smoke-flue. It consists, further, in supplying air to support combustion along the whole extent of each side of the bottom grate, by means of air-pipes led beneath the ovens. It consists, further, in placing movable boilers over the ovens, and below the level of the top plate of the range, which can be brought forward, and extended across the top of the fire when about to be used, their ends being supported by the water-back. A like boiler is inserted over the fire-chamber from the front of the range. It consists, further, in dividing the water-back into two distinct and independent parts, and interposing between them an air-space, which is open to the fire-chamber, so that the temperature of the water in one will not be affected by the other. It consists, further, in providing means for suspending the range from its four corners, to enable it to be used on shipboard.

The letter *A* designates the fire-chamber, which is four sided in this example, but it may be made of any other shape. Its bottom grate *B* has curved bars, and is concave on one surface and convex on the other. It is suspended by journals *D D* at its back and front ends, and is so arranged and fitted, that it may be taken out of the range when the vertical grates *C* are lifted out, and turned over when it is desired that its convex surface be uppermost. When its convex surface is turned up, the fuel thereon will have a tendency to slide down towards its edges at both ends and at both sides, leaving a thinner body of fuel on the middle parts of the grate than along its edges, thereby moderating the rapidity of combustion. The fire-chamber is supplied with a vertical grate, *C*, which may be, as in this example, one continuous grate-frame, or it may be composed of separate pieces, joined or connected after being placed in the fire-chamber. The vertical grate is separated from the sides of the fire-chamber by an air-space, which extends to the ash-chamber below, and is bounded above by the bottom of the water-back *P*, which sets on the top of the vertical grate. By separating the vertical grate from the sides of the fire-chamber, a free supply of air is allowed to have access to its sides,



which are also in part the sides of the ovens, and of the air-chamber that connects them, and they are thereby protected from too great heat of the fire, while such separation enables me to dispense with fire-brick or other protecting lining.

The letters E E designate ovens placed on opposite sides of the fire-chamber. They are connected at the rear by an air-chamber, F, that extends across the back of the range. The air-chamber makes a continuous oven and hot-air space about three sides of the fire-chamber, and the ovens may one or both be isolated from it by shoving back the dampers, hereinafter spoken of, which close the sides of the ovens towards the fire. The inner side of each oven is open towards the fire-chamber, the opening for each oven being provided with a sliding damper, G, operated by rods that pass through the front of the range. These dampers are right-angled in shape, their upper or horizontal parts G' being fitted beneath the top of the ovens, so as to close openings b b made therein, through which the smoke from the broiling operations may escape into the air-space E', formed between the ovens and the cover of the range. When these dampers close the ovens, the air-chamber is in communication with the ovens, but when the sides of the oven are opened, the rear ends of the dampers extend across the air-chamber F, and close it to the ovens. The object of these openings in the sides of the ovens is to enable me to use the direct heat of the fire in the ovens for such operations as require the rays of heat directly from the fire. The walls of the fire-chamber are raised along all its four sides, above the level of the ovens, and of the air-chamber F, as at H, so as to form the space E' between their tops and the cover of the range, into which the smoke and odors, when any of the broilers are used, pass through openings b b in the tops of the ovens. These openings are closed by the horizontal parts G' of the sliding dampers G, above mentioned. When these dampers are pushed back to open the sides of the ovens, the openings b are also opened to allow the gases and odors to reach the discharge-pipe O. The raised part H supports the corner of the range. This raised part H is cut away at each side of the fire-chamber for a space sufficient to allow broilers I I to enter the fire-chamber from the air-space above the ovens. When these boilers are moved back, as seen at the left-hand side of fig 1, the openings in the raised part H are closed by vertical pieces J, on their ends towards the fire. When they are moved over the fire, they rest at each end on the water-back P. Only one broiler I is used at a time. They are reached by means of a poker inserted through the boiler-holes of the range. A like broiler, I', is provided at the front of the stove.

The smoke-pipe K rises through the cover of the range from a point directly over a combustion-chamber, L, formed over the air-chamber F, and communicating with the fire-chamber by a passage, M, through which the gases from the fire enter. In this combustion-chamber these gases become burnt before reaching the smoke-pipe. The hot air from the air-space E' under the cover of the range, is conducted thence by a pipe, O, into an upper air-space, N, over the back of the range, which forms a warming-chamber for warming plates and articles of food. It may have doors in front, and in rear it is closed by the brick-work. This chamber N has a pipe, O, that leads into the smoke-pipe, and the pipe has a damper, P', so that one can at pleasure allow the hot air escape into the smoke-pipe, or shut it off and confine it in the chamber N, and in the ovens below. When the damper is open any odors that rise from the broilers are carried into the smoke-pipe. The four covers of the range are provided with staples a, which project through its cover, so as to receive hooked rods by which the range can be suspended from the ceiling of a ship's kitchen or of a lower deck, thus enabling one to use the range on shipboard without danger of having it overturned by the motions of the vessel.

The water-back of the range is seen at P. It lines the four sides of the range, and comes down to the edges of the upright grates c c D, covering the spaces left between them and the ovens and air-chamber, so that the air from the ash-pit is compelled to pass through the bars of said side grates, and through the fuel which lies against them, into the centre of the fire-chamber, thereby causing the fuel to be abundantly supplied with air to support combustion, so that the fuel will be burned with uniformity, and that portion which is at the sides will not become cooled by being clogged and choked with ashes, as is common in fire-chambers with solid sides. The water-back is divided into two parts, each one of which is independent of the other, and has its own water-supply and discharge pipes, so as to form two separate water-backs Q Q, one of which, in this example, is extended from the middle portion of the fire-chamber backwards to the rear thereof, and the other to the front, the separation consisting of air-spaces R R, which are left open above and below, so that the gases of the fire can circulate through them.

By this construction, the temperature of the water in such division Q of the fire-back is unaffected by the temperature of that in the other division, so that while one of the divisions supplies hot water for the kitchen, (where it is liable to be needed at any hour,) and the other division supplies the upper apartments of a house, the drawing away of heated water from one will not lower the temperature of the other. The divisions Q Q may be differently arranged as to relative dimensions, and as to the positions they occupy in the fire-chamber from the arrangement here shown, without departing from the principle of my invention. The divisions Q Q have separate induction and eduction-pipes, the former, S S, which supply fresh water, being extended nearly down to the bottoms of the divisions, and the latter, T T, which conduct away the heated water, merely opening into the upper sides thereof. The hot-water pipes T T lead from the divisions Q Q of the water-back to independent water-cylinders U V, which they enter some distance above their bottoms, as shown in fig. 8, the cylinder V being enclosed by cylinder U, and the hot-water pipe that leads to it being taken through the outer cylinder U, and across an annular air-space, W, which separates the two cylinders. These pipes, and all the other pipes that belong to the range and its water-apparatus, are to be properly packed and fitted in stuffing-boxes to make steam-tight joints. Each cylinder U V has two pipes, X X, leading out of them at top, one of which for each cylinder is connected with a pipe of suitable length, to conduct the hot water to the place where it is desired to draw it out, and the other pipes X, one in each cylinder, are for the escape of steam, and may be fitted with compressing steam-gauge cocks for safety. The cylinders are supplied with fresh water



through the pipes Y Y, which penetrate through their tops and terminate below the mouths of the hot-water pipes T. The pipes S S which conduct fresh water to the divisions Q Q of the water-backs, leave the cylinders U V at their bottoms, where the water of the lowest temperature is found. The annular air-space W that separates the two cylinders, is provided at top and bottom with pipes Z Z, one of which admits fresh air from below, and the other leads heated air from its upper end, such heated air being led if desired into pipe N, it being clear that the air in the annular air-chamber W will not only keep the temperature of the water in one cylinder from being cooled or affected by the temperature of the water in the other cylinder, but that if a circulation of air is permitted through it by means of the pipes Z, the air therein will be heated somewhat by heat transmitted from the hot water in said cylinders. That pipe Z which goes into the bottom of the air-cylinder W, enables me to draw off any water which may leak into said air-cylinder from the adjoining water-cylinders, and by means of such pipe I can ascertain if the water-cylinders remain tight. It will be observed from this construction, that the water-back of the range supplies hot water in two independent directions, and in such a way that the temperature of the water, while in one division of the water-back, and after it is conducted away, is not affected by the temperature of that of the other. This principle of making a water-back can be applied to other forms of water-backs, as, for instance, to those that are placed only against the wall of the fire-chamber or against one of its sides.

The letter O designates air-pipes, which supply air to support combustion along the whole length of the fire-chamber, at the sides of and beneath the bottom grate. These pipes, in this example, extend from the forward part of the spaces beneath the ovens to the sides of the grate. Their mouths O are flattened out, and they may be left open or may be covered, as here shown, by a perforated plate that will allow the air to escape freely therefrom. The flattened parts terminate just beneath the edges of the bottom grate along their sides, and are extended to a length about equal to the length of said grate. The water-back rests on or comes close down to the top edges of the upright grates, and closes the air-spaces left between them and the ovens and air-chamber, so that the air is compelled to pass through the said upright grates, thereby supplying constantly a good supply of air to support combustion at the four sides of the fire.

I claim as new, and desire to secure by Letters Patent—

1. Forming an air-chamber across the back of the range, in communication with both the ovens of the range, substantially as described, so as to form a continuous oven and hot-air space along three sides of the fire-chamber.

2. I also claim the gas-combustion chamber, placed above the air-chamber and beneath the smoke-exit pipe, substantially as described.

3. I also claim the broilers I, one or more, arranged over the ovens, so that they can be projected over the fire-chamber, substantially as described.

4. I also claim the bottom grate, when made in the form here shown, supported by journals at its ends, so that it may be taken out and turned upside down, thus enabling one to use it as a concave or a convex grate, substantially as described.

5. I also claim separating the divisions Q Q of the water-backs, by an air-space, so that the temperature of the water in one will not affect the temperature of the water in the other, substantially as described.

6. I also claim the inlet and outlet-air pipes in the annular air-chamber, that is placed between the water-cylinders, substantially as described.

7. I also claim conducting the hot-water pipe that leads from the water-back to the inner cylinder V, through the outer cylinder U, and across the annular space W, substantially as described.

8. I also claim providing a range with staples a, or their equivalents, for the purpose of suspending it from a ceiling, as on shipboard, substantially as described.

JOHN McCLOSKEY.

Witnesses:

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GEO. H. STRONG.