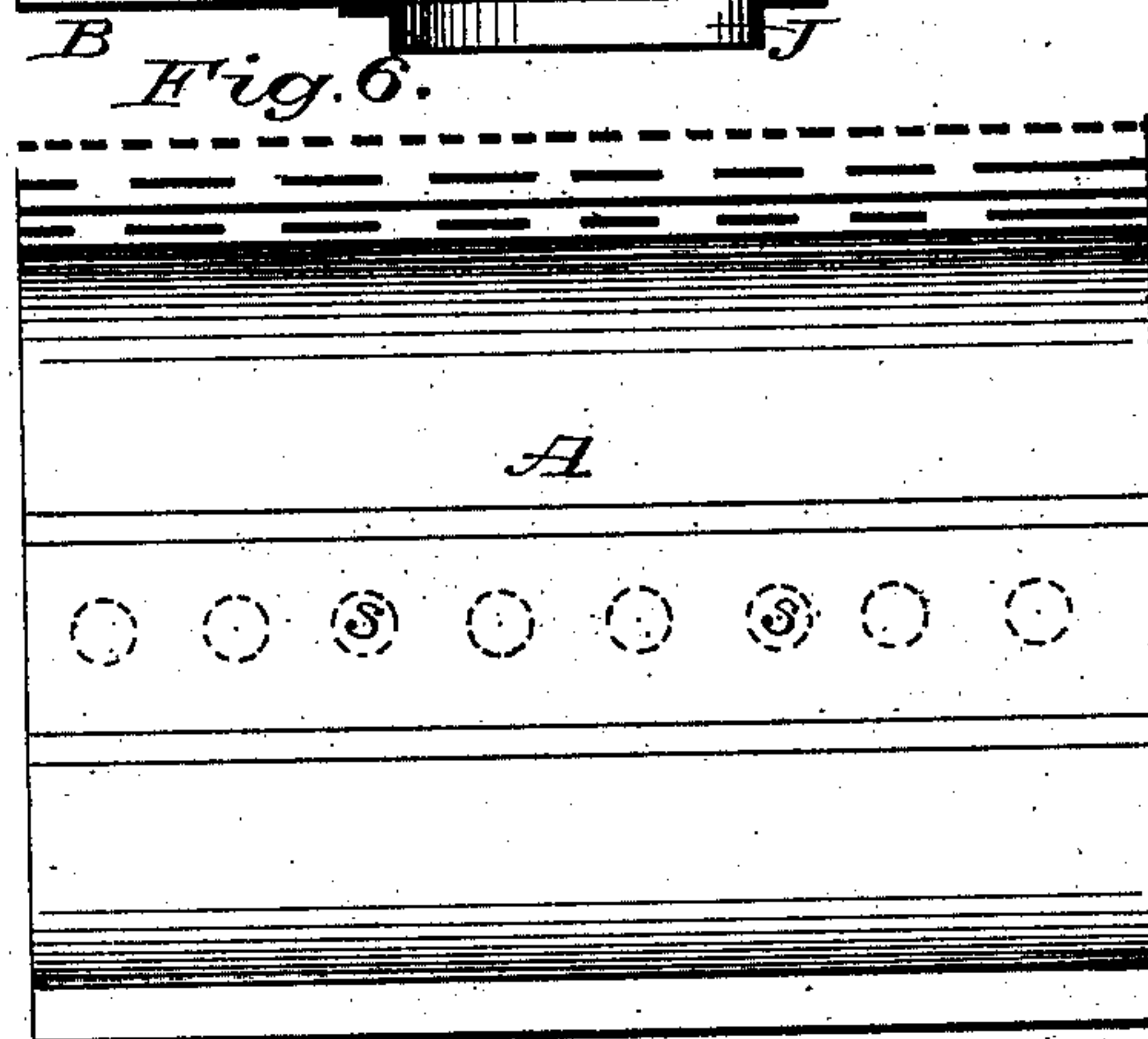
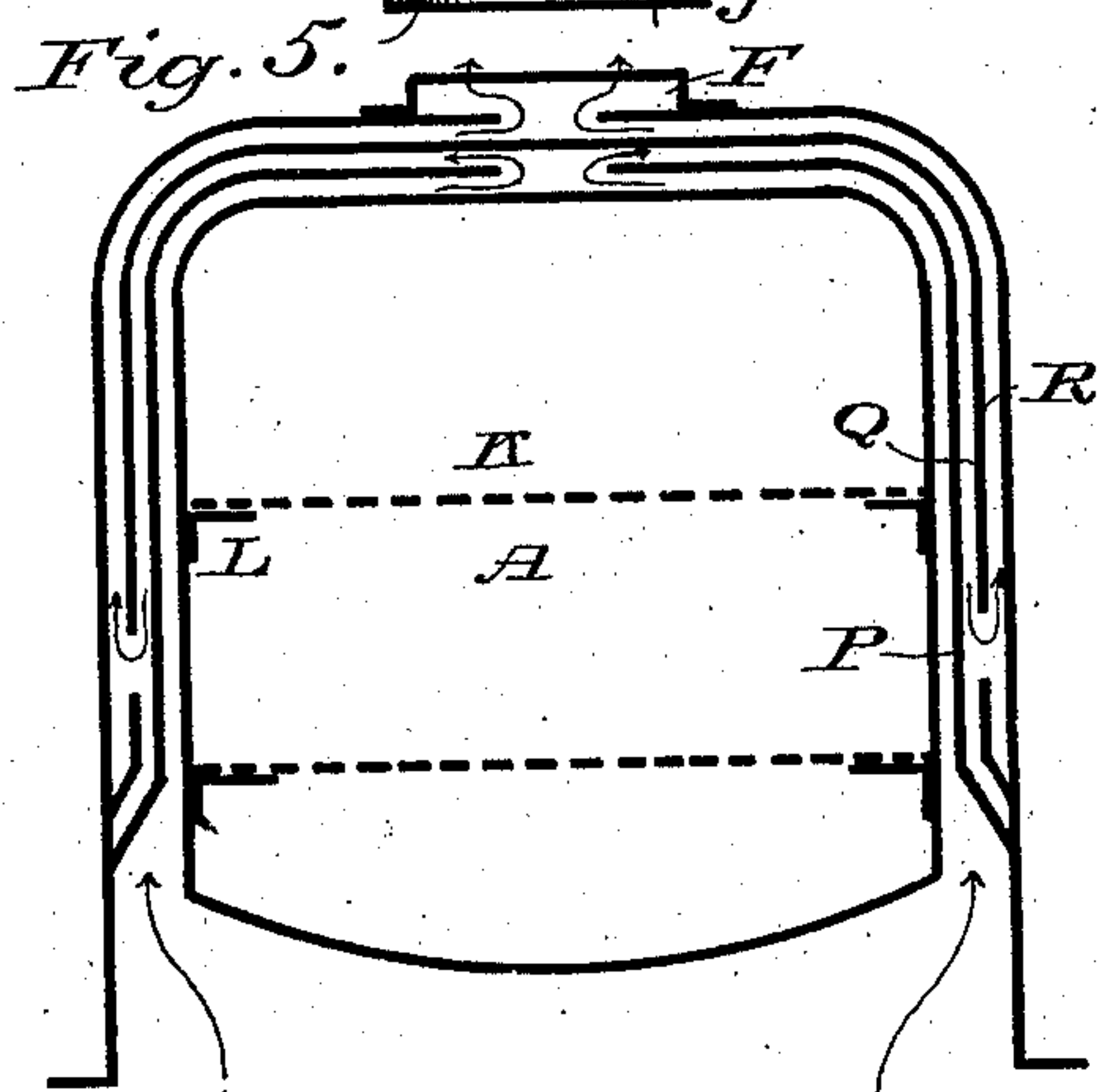
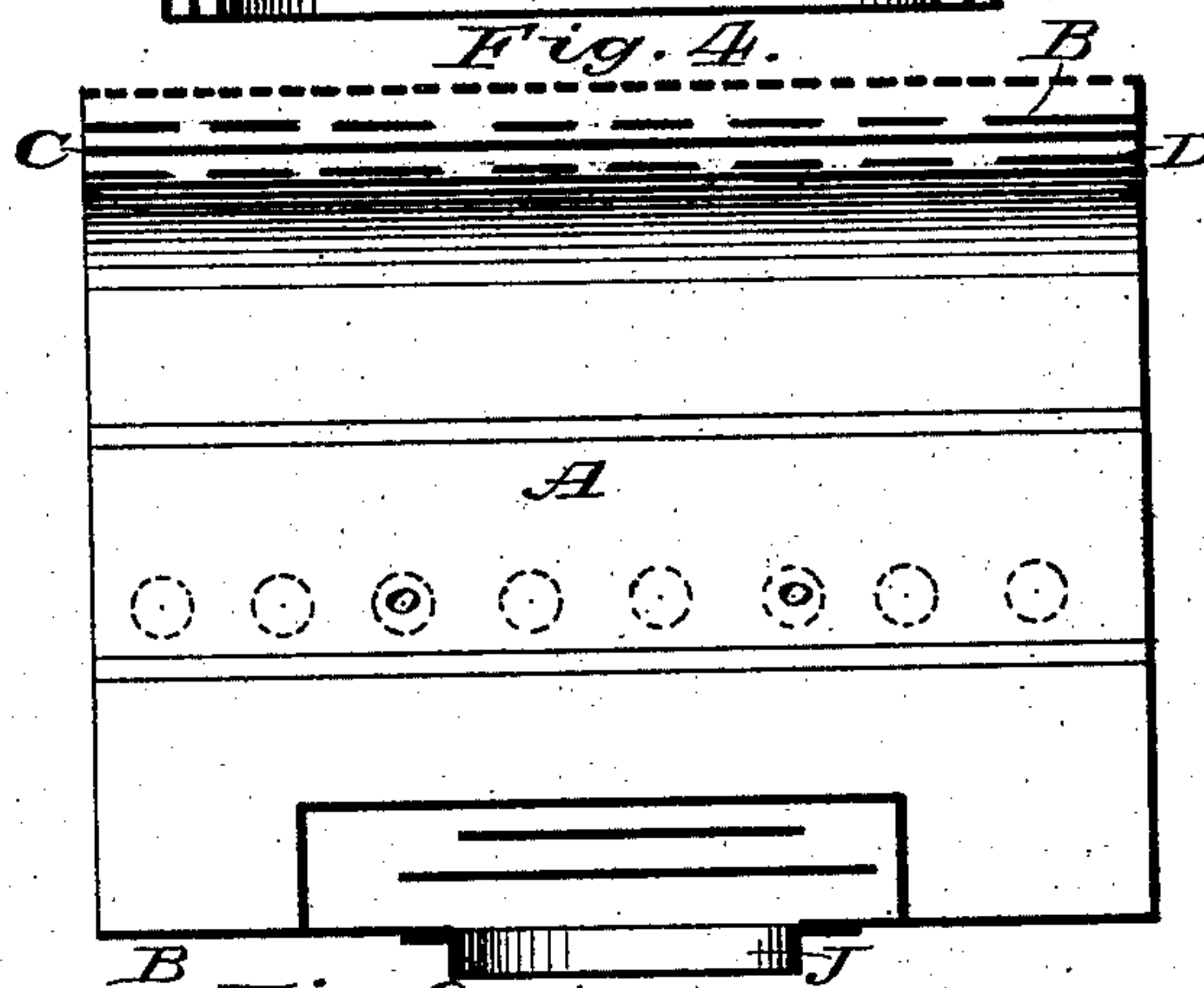
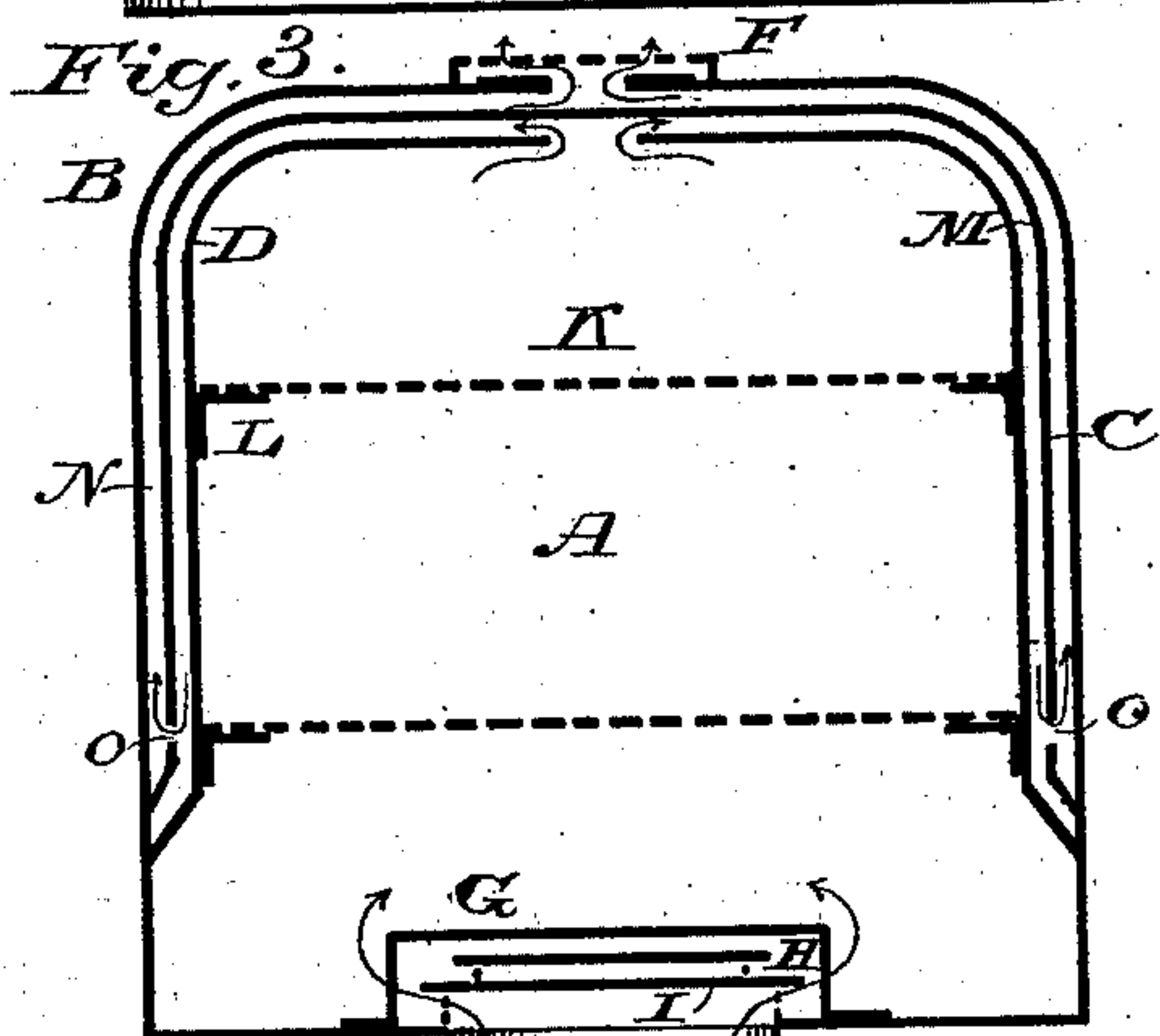
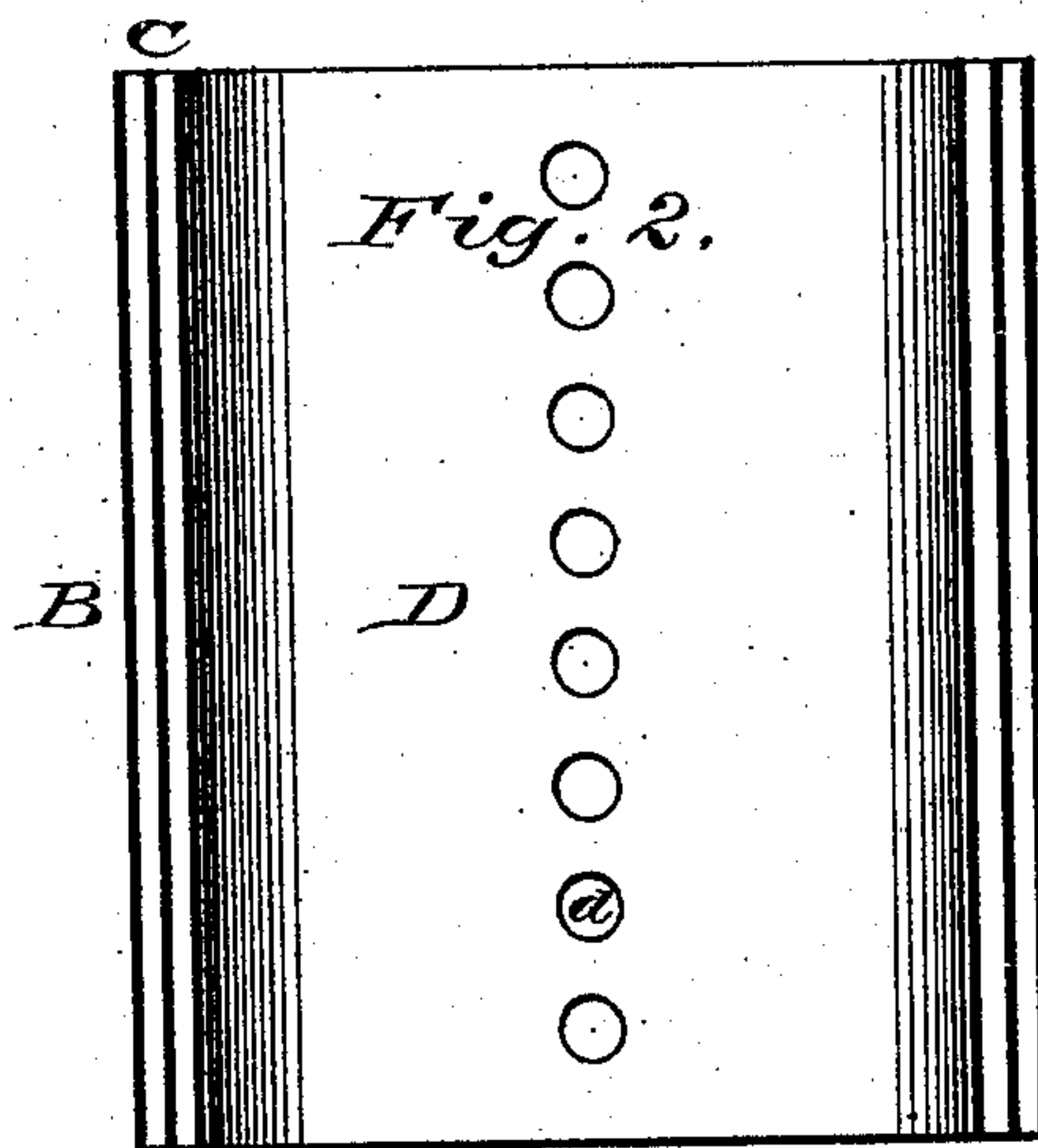
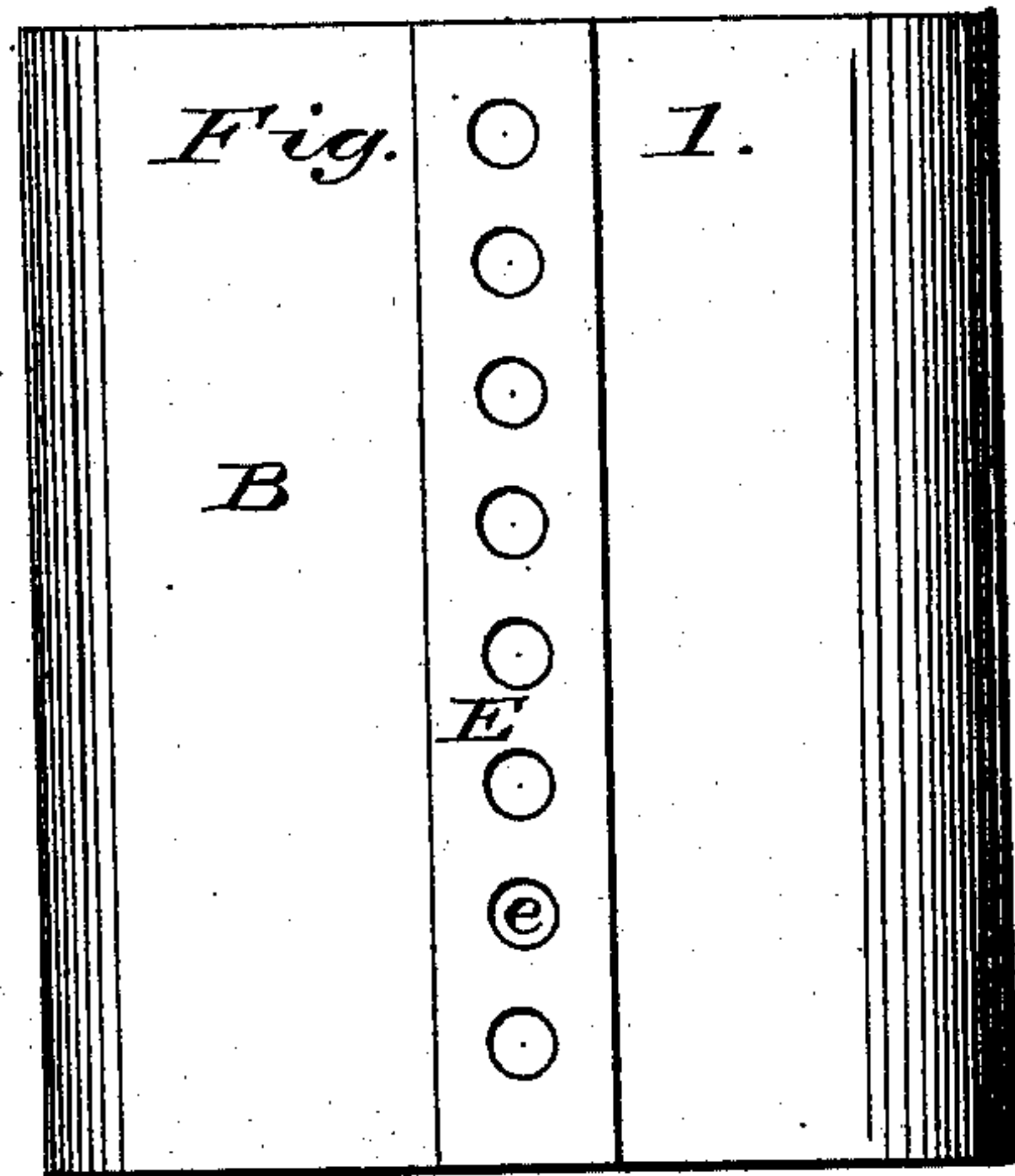


S. DARLING.  
Stove-Oven.

No. 209,332.

Patented Oct. 29, 1878.



Witnesses:

John E. Hall  
John J. Bronsone

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Samuel Darling



# UNITED STATES PATENT OFFICE.

SAMUEL DARLING, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN STOVE-OVENS.

Specification forming part of Letters Patent No. **209,332**, dated October 29, 1878; application filed September 5, 1878.

*To all whom it may concern:*

Be it known that I, SAMUEL DARLING, of the city of Providence and State of Rhode Island, have invented certain Improvements in Gas, Oil, or Fluid Burning Stove-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.

My improvements consist in making a gas, oil, or fluid stove-oven with three or more thicknesses of thin metal, with spaces between them, so arranged and connected together by openings through the plates that when the heat is applied there will be two or more spaces filled with hot air nearly surrounding the top and sides of the oven; and in attaching a register to the heat-escape orifice, and also in providing the oven with a removable heat-deflector and a pipe or cylinder attached to the under side of the oven surrounding the gas-burner; and also in attaching to the top of the oven over the register a warming-plate, all of which will be fully explained and illustrated in the following specification and accompanying drawings of an oven embracing my improvements.

Figure 1 of the drawings is a top plan with the warming-plate over the register removed; Fig. 2, a top plan with the upper parts of the middle and outside plates removed, showing the openings in the top of the inside plate; Fig. 3, cross-section of the stove complete; Fig. 4, longitudinal vertical section of stove complete; Fig. 5, cross-section of an oven embracing my improvement having four plates and three hot-air spaces; Fig. 6, a longitudinal vertical section of a four-plated oven, showing the holes in the second plate from the outside.

In the drawing, A represents the interior of the oven; B, the outside plate; C, the middle plate; D, the inside plate; *d d*, openings through the inside plate from the interior of the oven; E, register; *e e*, holes through the register and outside oven-plate; F, warming-plate; G, removable heat-deflector; H I, permanent heat-deflectors; J, cylinder on the under side of the oven; K, grates; L, grate-sup-

porters; M, space between plate D and plate C; N, space between plate B and plate C; *o o*, holes in plate C; P, Fig. 5, first space from the interior, through which the heat passes from a gas-burner or oil-lamp; Q R, hot-air spaces; S S, holes through the third plate from the inside.

From their great convenience cooking-stoves heated by gas, oil, or similar substances are rapidly coming into use in this country, and also in Europe, and any real improvement in their construction is considered of much importance. The stoves as now constructed are quite complete and satisfactory, except the oven for baking, roasting meats, &c. The defects in the present form of ovens used are, first, that they require too much gas, oil, or heating substance to be afforded by persons having a small income; secondly, they are not sufficiently effective in baking large loaves of bread, roasting meats, &c.; and, thirdly, they do not bake so evenly as desired.

There are two reasons why the present form of ovens require so much gas or oil. The first is the great radiation of heat from the outside plate, it being exposed to the open air. The second is that the aperture for the escape of the heat that passes through the oven is not properly located and sufficiently capacious to produce an easy flow of heat through the oven which is required to make it heat properly and use the heat in the most effective and economical manner.

Another defect in the present oven is the unevenness with which it bakes many articles.

To remedy these defects and otherwise improve such ovens, I make my oven of three plates when the heat is applied immediately to the interior or baking apartment of the stove. I make holes *d d* in the top of the inside plate, D, for the passage of hot air into the space M between the inside D and middle plate, C, holes *o o* in the middle plate, C, for the passage of hot air from space M into the second space, N, and holes *e e* in the outside plate, B, for the final escape of the air that has passed through the oven and spaces. I also place a register, E, at the final outlet, so that the flow of the heated air through the oven may be regulated at will, and I also place a warming-plate, F, over the register to still



further utilize the heat by placing articles on the plate for heating or warming.

The great advantage of having the space N filled with hot air to protect the middle plate is obvious, as it costs nothing to heat that space with the exhaust-heat in comparison with an oven having but two plates and one space. By having the final exit of the hot air at the highest point of the oven the heated air circulates freely, and that with the protecting-space N of hot air renders the oven exceedingly effective and economical.

Any article can be cooked in this oven that can be cooked in one heated by coal, and with greater convenience, as the degree of heat in the former can be increased or diminished with greater facility than in the latter. The ovens under consideration as heretofore made do not bake so evenly as desired, the bottom of the article being inclined to burn before the top is sufficiently baked. To obviate this defect, I provide the oven with a removable heat-deflector, G, in addition to the usual fixed ones, by the use of which the operator can prevent the under side of an article from baking faster than the top.

In many gas-stoves now in use the burners are so exposed to the atmosphere that the common currents of air caused by open windows, &c., greatly interfere with the steadiness of the flame, and to prevent which I attach to the under side of the oven surrounding the burner a cylinder or pipe, J, which also serves to hold the stove in proper position relatively to the burner when said pipe fits the casing of the burner.

There are many oils that can be used for heating ovens of this class at much less cost

than they can be heated by gas; but, owing to the smoke and other offensive products of the combustion of these oils, the heat cannot be allowed to pass into the interior or baking part of the oven, and in making an oven for burning such oils or substances, I make it with four plates, the heat passing up between the inside and second plates, as shown in Figs. 5 and 6.

The back end and door of the oven should be made of two or more thicknesses, with space between the plates, which is generally done.

Having thus fully explained my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, in a gas-stove oven, of the plate D, having holes *d d* in the top, plate C, having holes *o o* in the side, plate B, having holes *e e* in the top, space M, and space N, substantially as described, and for the purpose set forth.

2. The combination, in a gas-stove oven, of the plate D, having holes *d d* in the top, plate C, having holes *o o* in the side, plate B, having holes *e e* in the top, space M, space N, grate K, and grate-supporter L.

3. The combination, in a gas stove oven, of plate D, having holes *d d* in the top, plate C, having holes *o o* in the side, plate B, having holes *e e* in the top, space M, and space N, register E, and warming-plate F, substantially as described.

SAMUEL DARLING.

Witnesses:

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