

(No Model.)

O. B. FULLER & W. M. WYCKOFF.

HEATING FURNACE.

No. 368,201.

Patented Aug. 16, 1887.

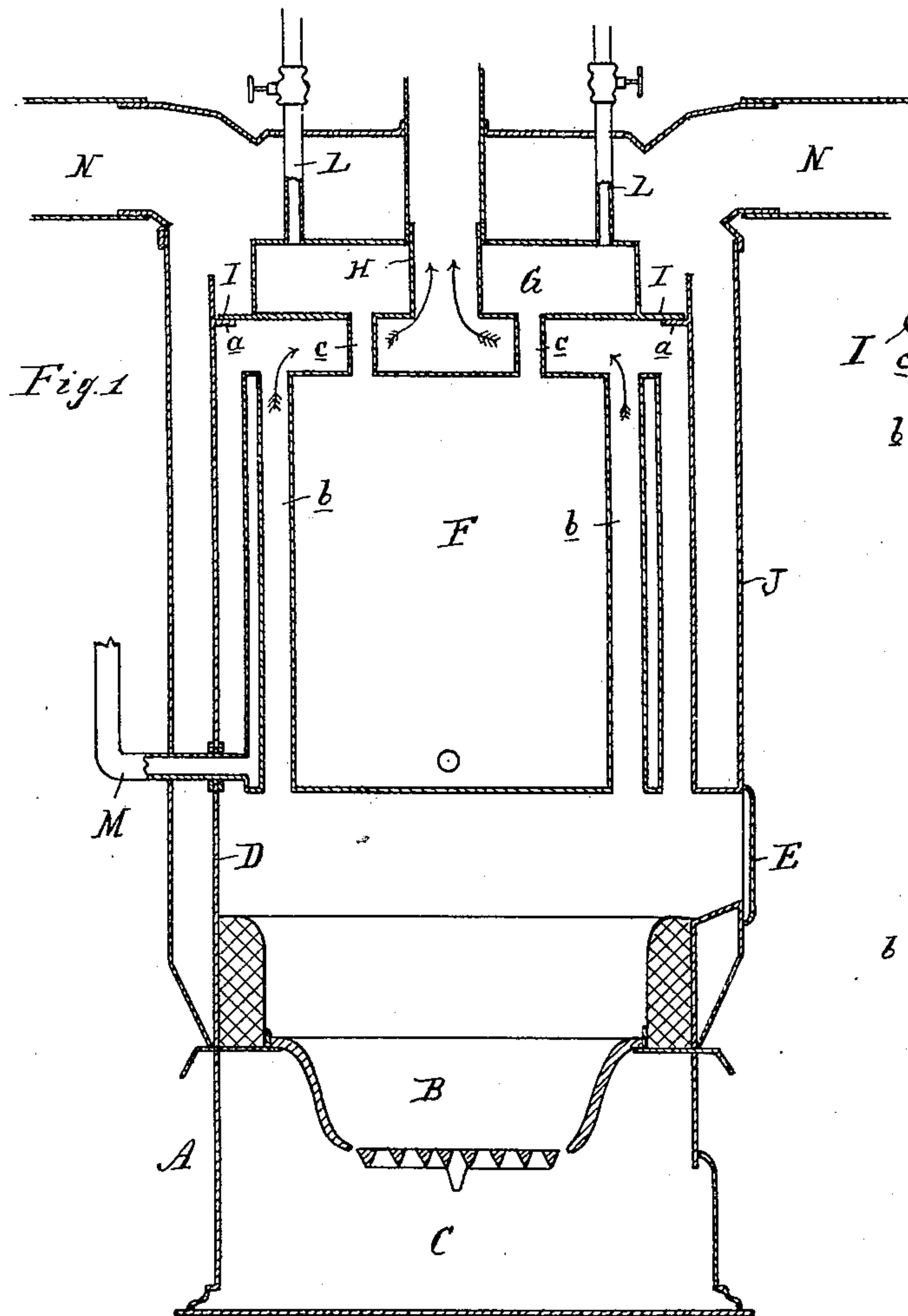


Fig. 1

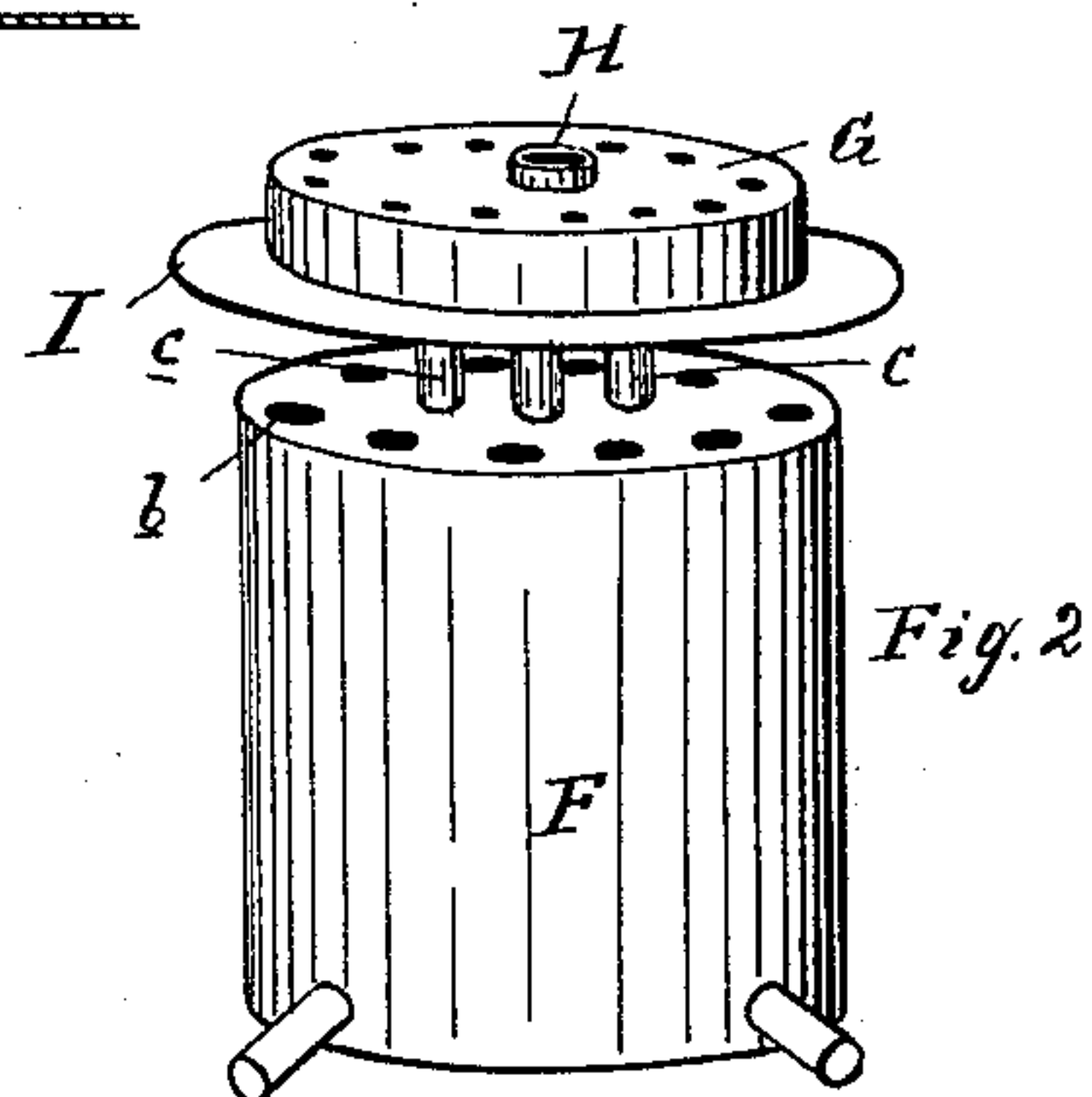


Fig. 2

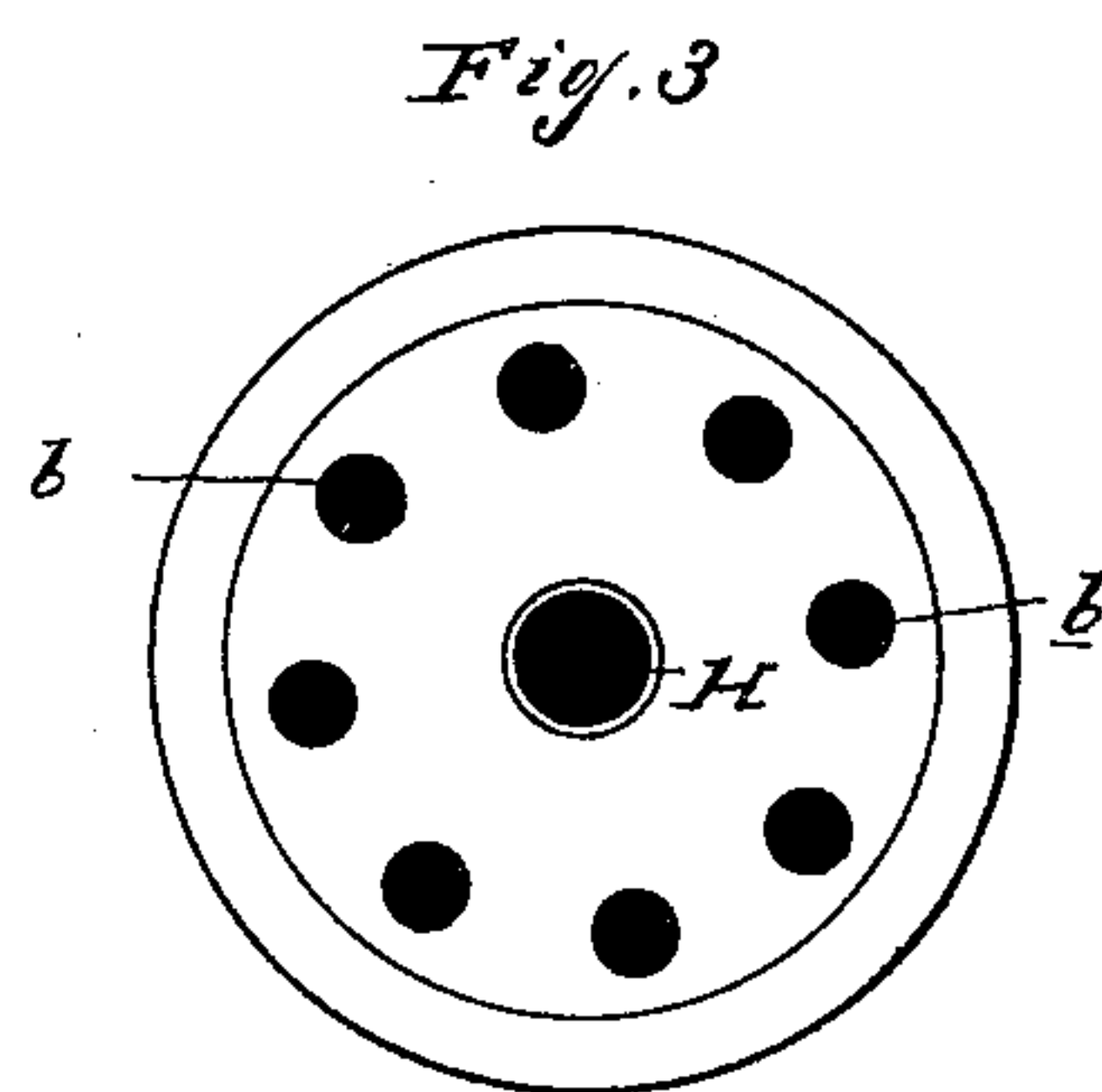


Fig. 3

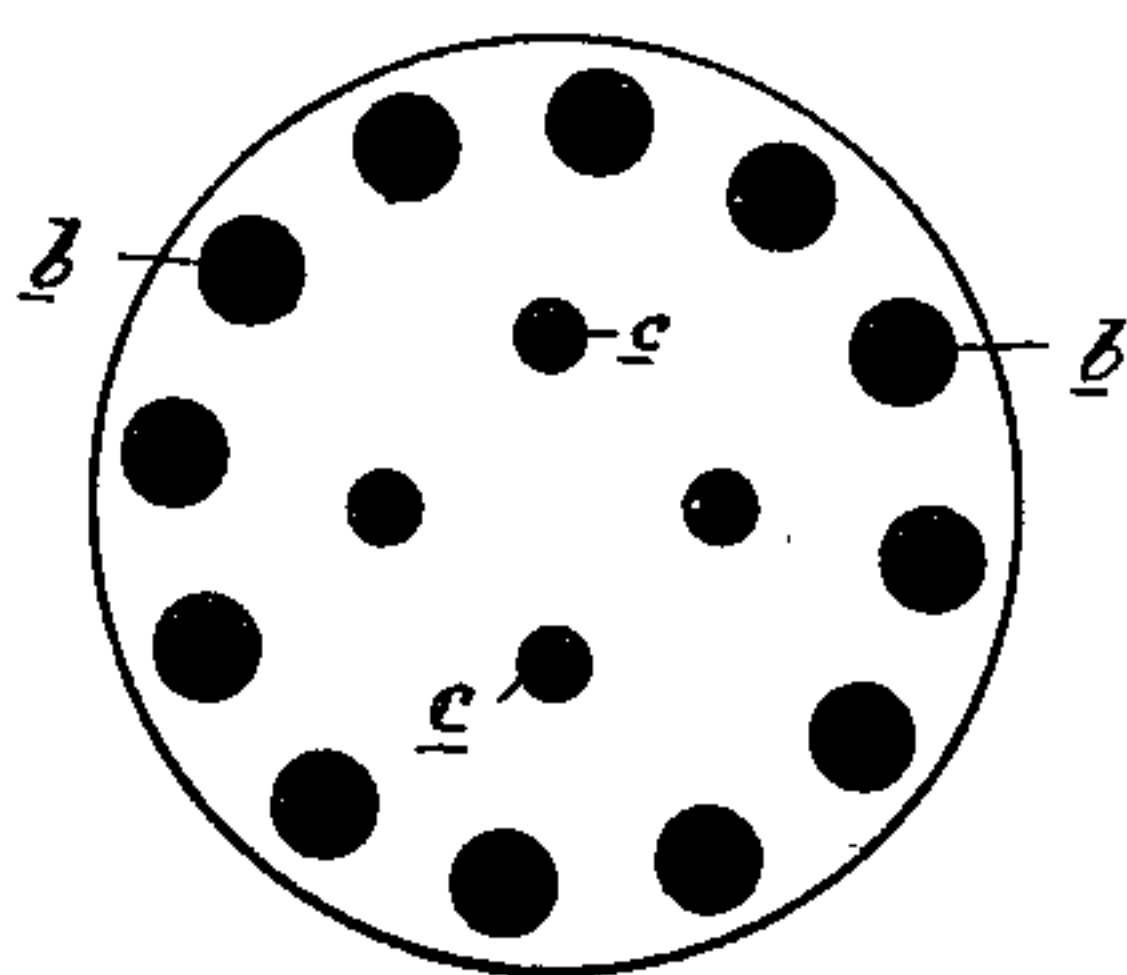


Fig. 4

Attest:

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By Atty

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# UNITED STATES PATENT OFFICE.

OLNEY B. FULLER AND WILLIAM M. WYCKOFF, OF DETROIT, MICHIGAN.

## HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 368,201, dated August 16, 1887.

Application filed March 17, 1887. Serial No. 231,250. (No model.)

*To all whom it may concern:*

Be it known that we, OLNEY B. FULLER and WILLIAM M. WYCKOFF, of Detroit, in the county of Wayne and State of Michigan, have  
5 invented new and useful Improvements in Heating-Furnaces; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of  
10 this specification.

This invention relates to that class of furnaces wherein are combined the systems of hot-air and hot-water circulation for heating purposes; and the object of the invention is  
15 to construct a device for this purpose in a simple, cheap, and efficient manner, and that can be readily applied as an attachment to various styles of furnaces now in use.

The invention consists in the peculiar construction, arrangement, and combinations of the various parts, all as more fully hereinafter set forth.

Figure 1 is a central vertical section of our improved furnace. Fig. 2 is a perspective of  
25 the reservoir detached. Fig. 3 is a top plan of the distributing-chamber. Fig. 4 is a similar view of the top of the reservoir.

In the accompanying drawings, which form a part of this specification, A represents a  
30 suitable base, which is provided with the usual fire-pot B, and ash-pit C, and may be of any of the known constructions.

Upon the top of the fire-pot section is mounted the fire-box D or combustion-chamber, preferably made of boiler-iron and provided with the feed-door E. The bottom of this  
35 fire-box should be lined with fire-brick, as shown. Near the top the fire-box is provided with an inwardly-projecting flange, *a*.

40 F is a reservoir somewhat smaller in diameter than the fire-box, and is provided with the vertical flues *b*, the reservoir being constructed upon the principle of a vertical-flue boiler. Mounted upon this reservoir F, and  
45 having communication with the water-space thereof by means of the pipes *c*, is a distributing-chamber, G, through which passes a central flue, H. This distributing-chamber is provided with a flange, I, designed to fit closely  
50 in the upper end of the fire-box and rest upon

its flange *a*, and at which point a sand or other suitable gas-tight joint should be made.

J is a jacket which surrounds the fire-box, and is provided with an opening, K, coincident with the feed-door E of the fire-box, the  
55 smoke and products of combustion of the latter passing up through the vertical flues of the reservoir and over the top thereof to the flue H, and through the distributing-chamber to a proper exit-pipe, which conducts them to the  
60 chimney.

L are suitable pipes rising from the distributing-chamber G, such pipes being employed for conducting the water to such room or rooms as it is desired to heat by hot-water  
65 circulation, the return to the boiler being through a pipe, M. Hot-air pipes N convey the heated air from the jacket J to the desired points.

The reservoir should be provided with any  
70 convenient expansion-chamber, as is required in all systems of hot-water circulation for heating purposes.

It will be observed that the flues of the reservoir F are arranged mainly in a circle near  
75 the outer edge thereof, while pipes communicating with the distributing-chamber are grouped near the center, the distributing-pipes from the chamber G being located near its outer edge. This arrangement of pipes and  
80 flues assures a better circulation through the boiler or reservoir.

In practice, the parts being constructed and arranged substantially as shown, a fire being  
85 built in the furnace, the products of combustion pass up through the flues of the reservoir, over the top of the same, and thence through the central flue of the distributing-chamber, from whence they find exit to the chimney through a suitable pipe. This necessarily high-  
90 ly and quickly heats the water in the reservoir, which is then circulated through the distributing-chamber and pipes, and returned to the boiler, as in all systems of this class of heating. The heat that is radiated from the fire-  
95 box heats the air within the outer jacket, such heated air being distributed to the desired points by proper pipes. There is a space left between the outer walls of the reservoir and the walls of the fire-box, into which space heat  
100



necessarily rises, and thereby greatly increasing the utility of the device both in heating the water in the reservoir and in radiating heat into the jacket.

It will readily be seen that the reservoir can be advantageously used as an attachment to any of that class of furnaces wherein there is a dome over the fire-pot, as in all of the so-called "surface" burners.

What we claim as our invention is—

1. The combination, with the fire-box provided with inwardly-projecting flange *a*, of the distributing-chamber formed with a flange, *I*, designed to rest upon the flange *a*, the reservoir *F*, arranged beneath said distributing-chamber and provided with vertical flues *b*, the pipes *c*, connecting said reservoir and chamber, and a central flue, *H*, passing through

said chamber, substantially as and for the purpose specified.

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2. The combination, with the fire-box, of the reservoir *F* therein and provided with the vertical flues *b* near its outer edge, the distributing-chamber *G*, central flue, *H*, passing through said chamber, the pipes *L*, rising from said chamber, the jacket *J*, hot-air pipes *N*, communicating therewith, and the pipes *c*, affording communication between said reservoir and chamber and grouped near the center thereof, substantially as and for the purpose specified.

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Witnesses:

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