

D. N. ALLEN.
STOVE OR FURNACE.

No. 178,892.

Patented June 20, 1876.

Fig. 1.

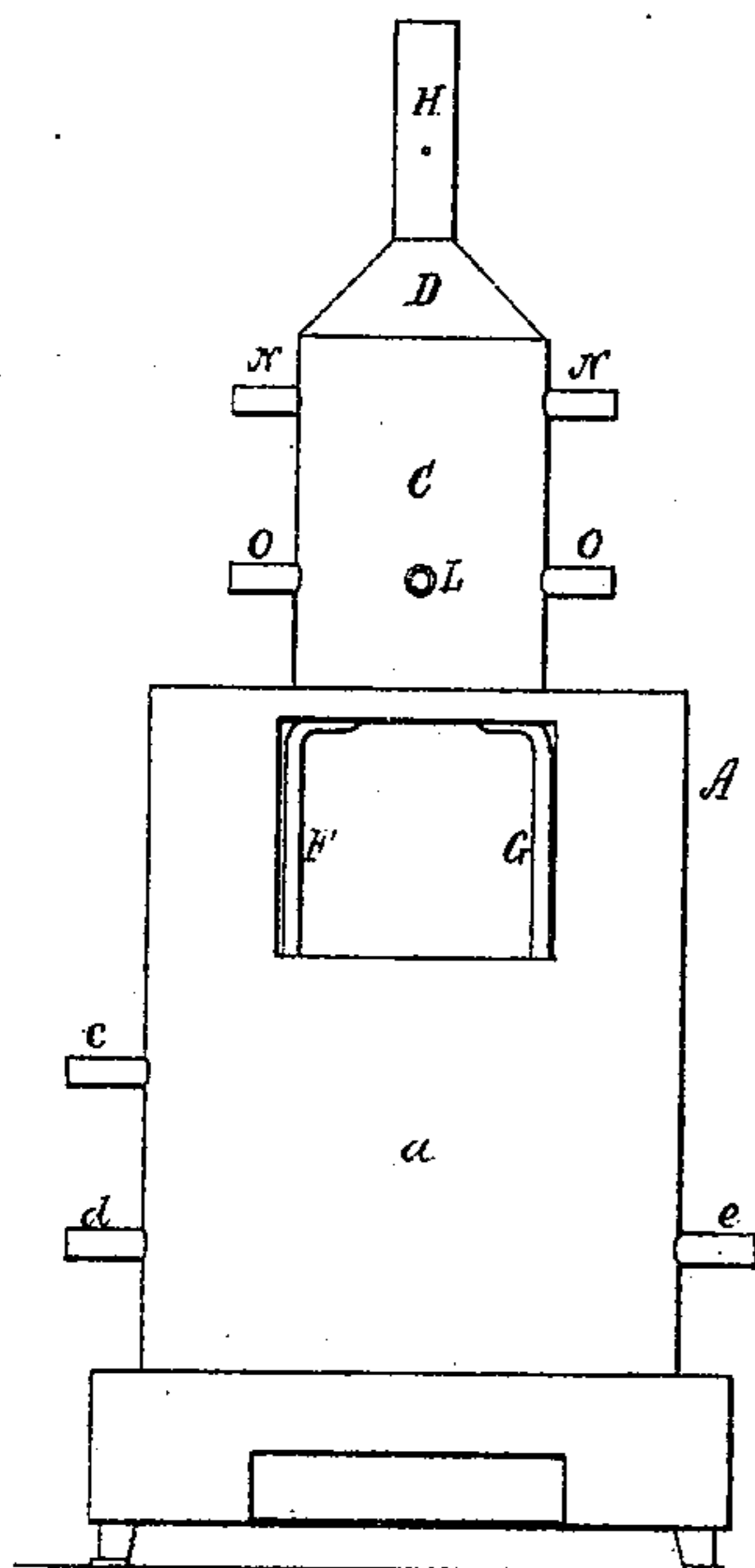


Fig. 3.

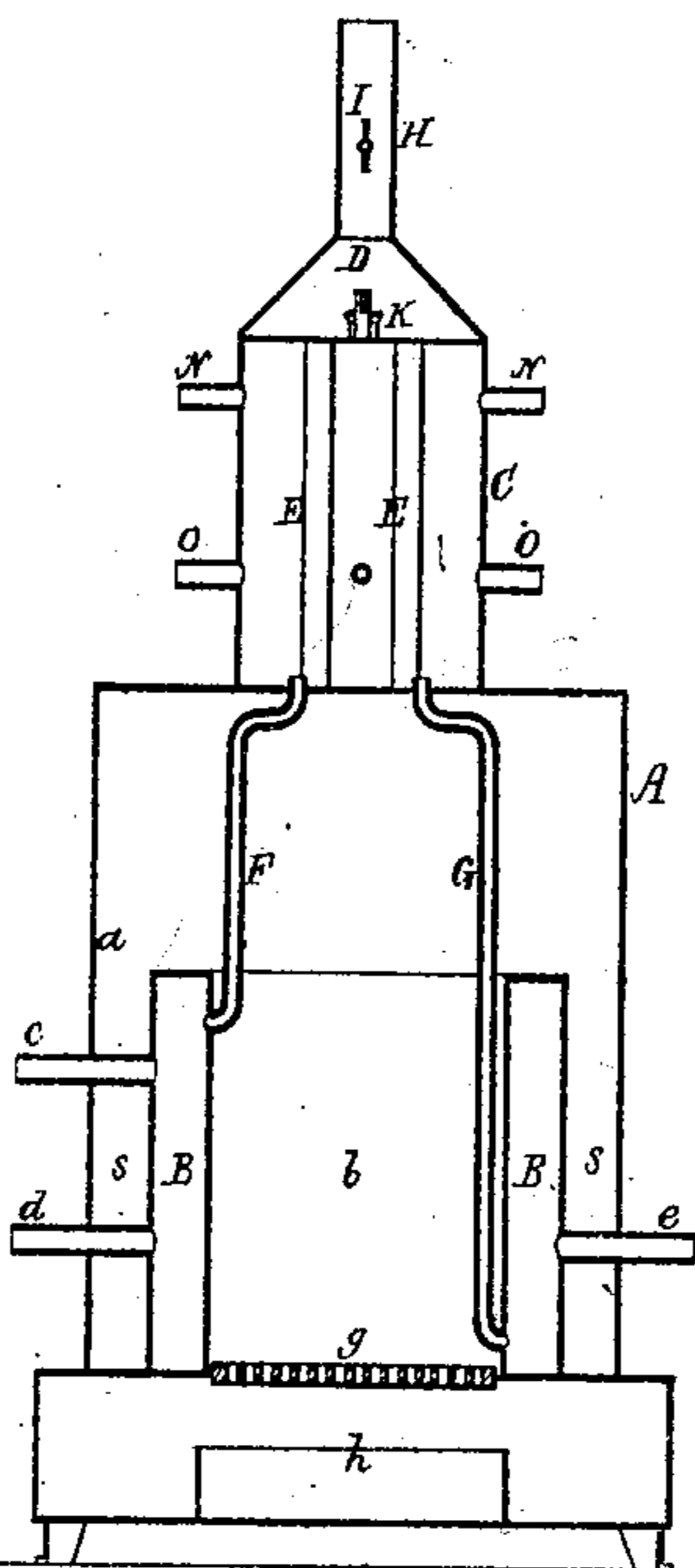


Fig. 4.

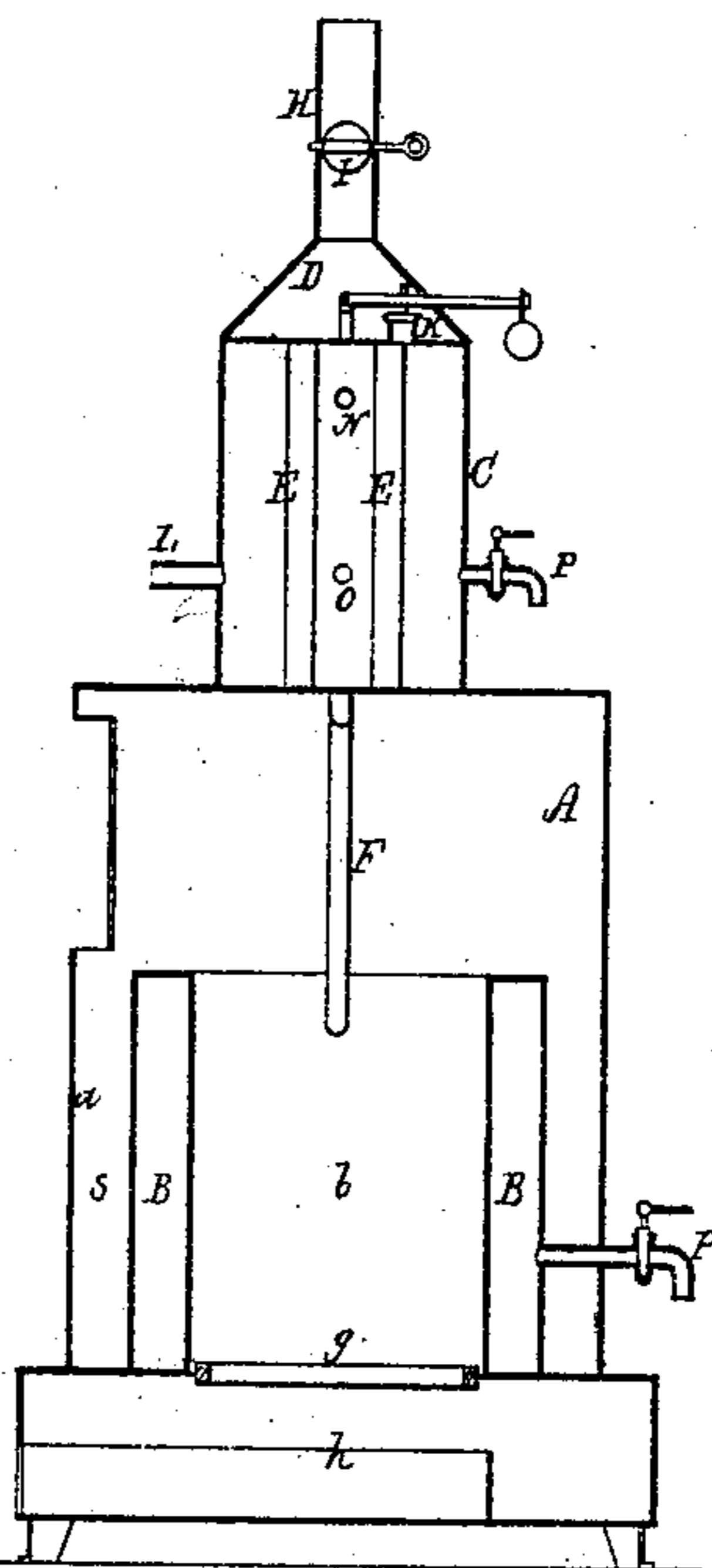
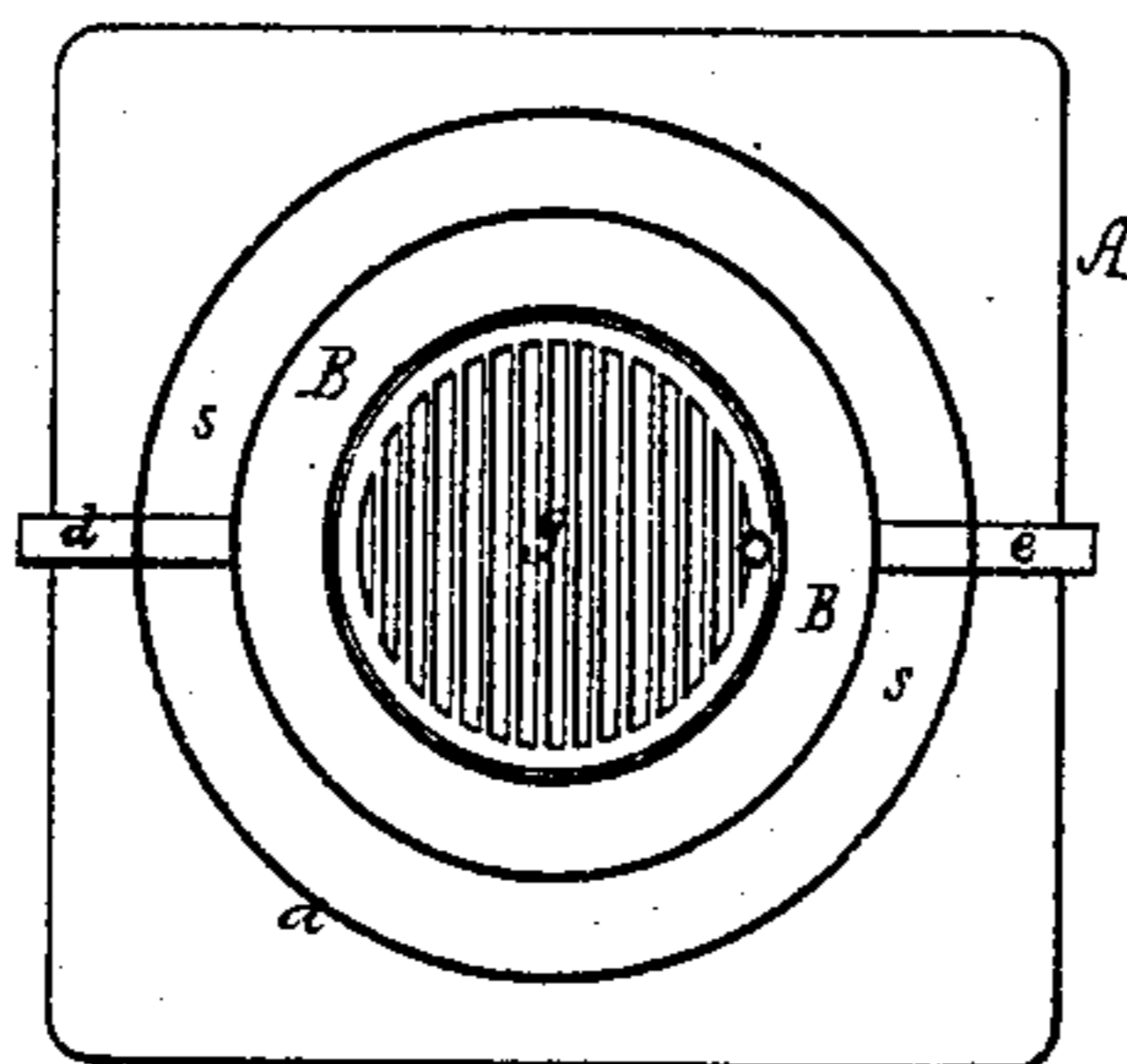


Fig. 2.



Witnesses.
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by his attorney.
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UNITED STATES PATENT OFFICE.

DANA N. ALLEN, OF CONCORD, NEW HAMPSHIRE.

IMPROVEMENT IN STOVES OR FURNACES.

Specification forming part of Letters Patent No. **178,892**, dated June 20, 1876; application filed May 13, 1876.

To all whom it may concern:

Be it known that I, DANA N. ALLEN, of Concord, of the county of Merrimack and State of New Hampshire, have invented a new and useful Improvement in Stoves or Furnaces; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front elevation, Fig. 2 a horizontal section, and Figs. 3 and 4 transverse and vertical sections, of a stove or furnace provided with my invention, in the carrying out of which I arrange within the body *a* of a stove or furnace, A, and to surround the fire-place or fuel-chamber *b*, an annular water-heater, B, provided with pipes *c d e*, for reception and discharge of water, and on the upper part of the stove-body I arrange, as shown, an auxiliary water-heater, C, and a dome or smoke-receiving chamber, D, this latter having one or more smoke-discharge pipes, E, extending down from it through the water-heater C, and opening into the smoke-chamber of the furnace or stove.

The two water-heaters B C I connect by circulation-pipes F G, arranged, as represented, within the stove. Furthermore, there is led from the smoke-dome a discharge-pipe, H, provided with a damper, I, and there is also within the smoke-dome a safety-valve, K, applied to the top of the boiler or heater C, and arranged to discharge waste steam from said boiler into the dome.

The boiler or heater C is to be furnished with an inlet-pipe, L, for supplying it with water, and it is also to have pipes N O, for discharge of steam or water from it, as occasion may require.

I usually have to each of the heaters or boilers a cock, P, for drawing water from it. The grate of the stove is shown at *g*, and the ash-chamber at *h*.

A furnace or stove with accessories as described may be employed to great advantage, not only for heating water in a closed tank or vessel provided with pipes for conveyance and distribution of such water to one or several basins or bath-tubs of a house, but it may be used for generating steam for warming the house, or any one or more rooms thereof, by

means of pipes leading thereto and connecting with the boiler or heater C; or the two boilers or heaters may be used exclusively for heating water, as circumstances may require.

The smoke and volatile products of combustion arising from the fuel in the fire-pot pass against the bottom of the heater C, and thence up through the vertical pipes of the said heater and into the smoke-dome, whereby heat from such smoke and volatile products will be imparted to the liquid contents of the heater. The lower heater becomes heated by direct contact with the mass of fuel in the fire-pot, and by the heated volatile products of combustion which circulate within the spaces immediately surrounding the said heater.

In my construction of water-heating furnace it will be seen that the pipe F leads out of the upper part and the pipe G out of the lower part of the heater B, and that such pipes are arranged within the fire-place and rise directly therefrom and pass through the stove A; also, that there is a space around the heater B, and between it and the stove A, such being to allow the hot smoke and gases to flow in contact with the outer surface of the heater.

By the arrangement of the pipes F G with the two water-heaters the hot water will flow from the heater B up into the heater C by the pipe F, the cooler water flowing down the pipe G into the lower part of the heater B. Thus, by such arrangement, a continuous circulation of water takes place from one heater to the other, and thence back again.

I claim—

1. My improved water-heating furnace, as described, composed of the stove A, smoke receiving and discharging dome D, two water-heaters, B C, one or more smoke-discharge flues, E, and the connection-pipes F G, all arranged and combined as set forth.

2. In combination with the dome D, water-heaters B C, stove A, flue E, and the connection-pipes F G, arranged as described, the safety-valve K, as arranged and applied to discharge into said dome the waste steam that may issue from the educt of said valve.

DANA N. ALLEN.

Witnesses:

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