

(No Model.)

D. McBRIDE GRAHAM.

APPARATUS FOR HEATING.

No. 297,129.

Patented Apr. 22, 1884.

Fig. 1.

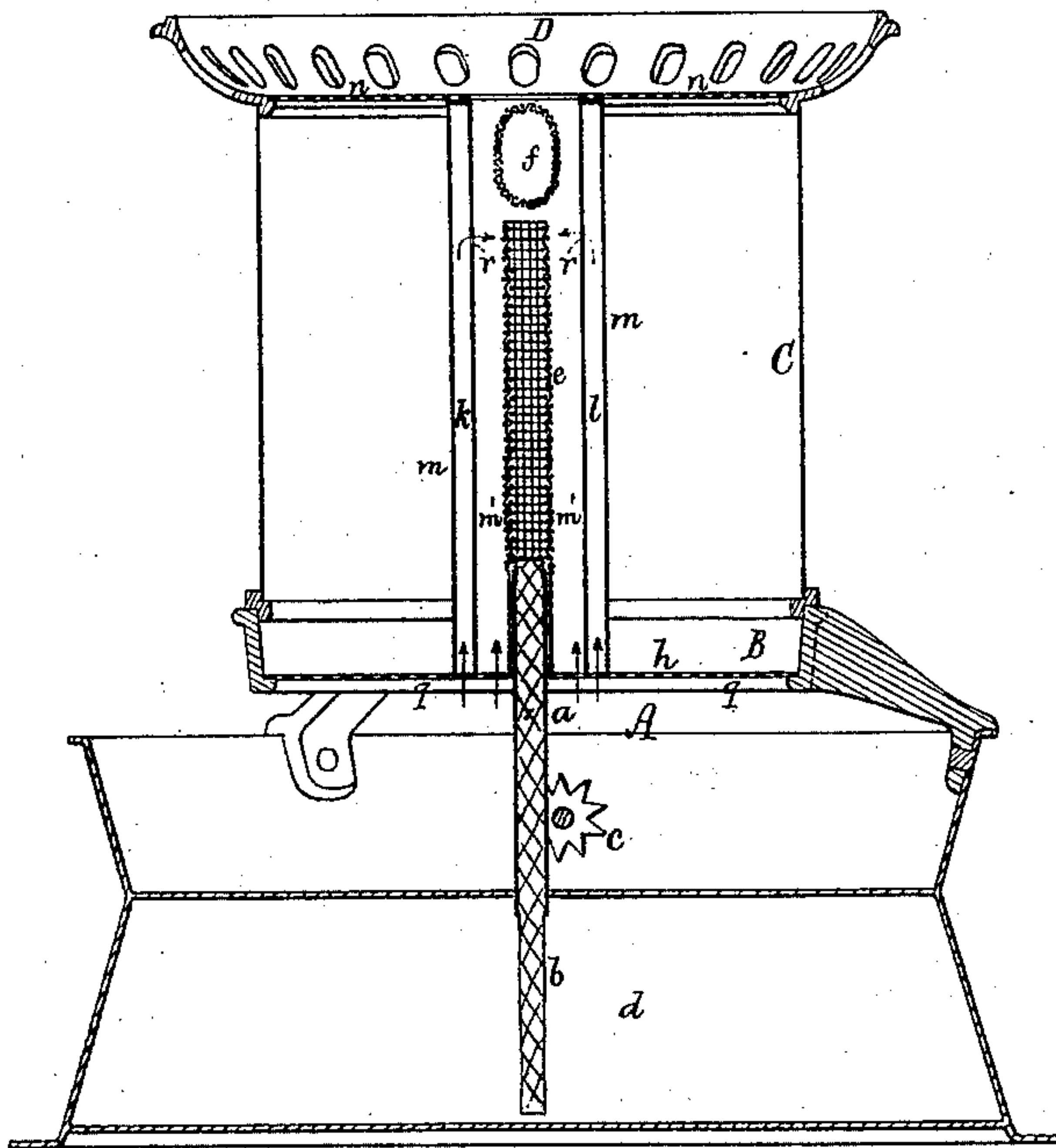


Fig. 2.

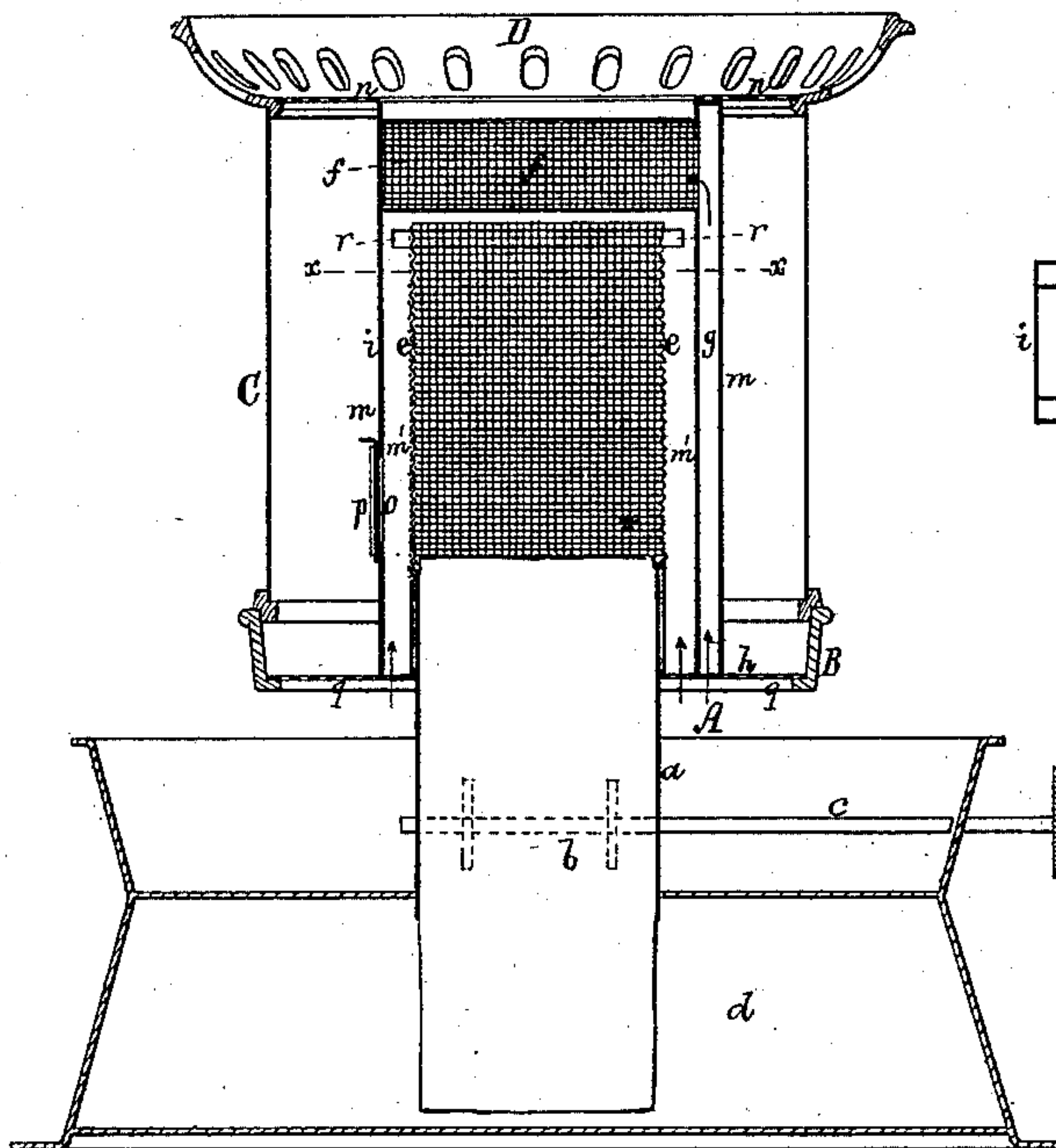
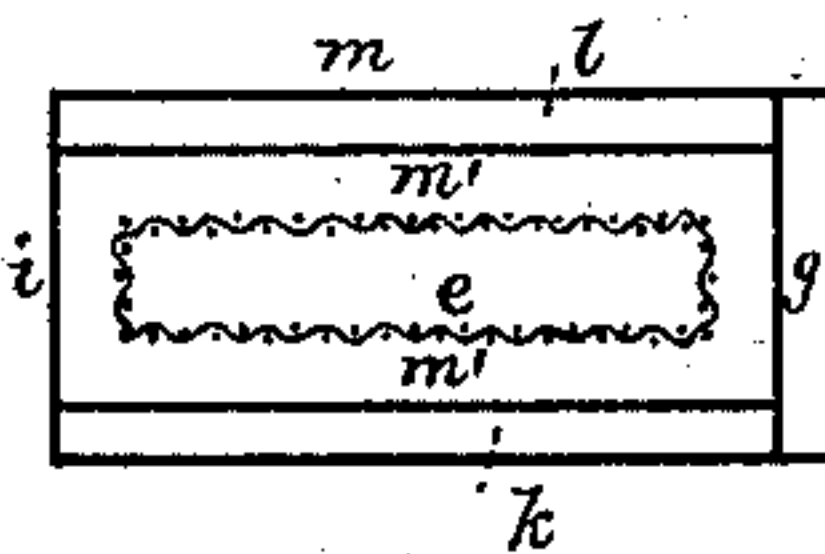


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HEATING.

SPECIFICATION forming part of Letters Patent No. 297,129, dated April 22, 1884.

Application filed June 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, DANIEL McBRIDE GRAHAM, of Chicago, in the county of Cook, of the Commonwealth of Illinois, have invented a new and useful Improvement in Apparatus for Heating; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

10 Figures 1 and 2 are vertical and transverse sections of a heating apparatus containing my invention, the said sections being taken in planes at right angles to each other. Fig. 3 is a horizontal section on the line xx of Fig. 2.

15 The nature of my said invention is duly set forth in the claims hereinafter presented.

In the said drawings, A denotes a lamp for burning kerosene or other oil, the wick-tube of such lamp being shown at a , the wick at b , the wick-elevator at c , and the oil-reservoir at d . Fixed to or placed on the wick-tube at its upper part, and extended above it, as shown, is a foraminous or wire-gauze chimney, e , having projecting over it at its upper end a foraminous tubular air-distributor, f . This distributor is closed at one end, and at the other opens out of a vertical air-conduit, g , which is open at its lower end, projects upward from the bottom h of a cup, B, supported above the lamp, and arranged with it and the foraminous chimney e , in manner as represented.

The said cup supports a removable drum, C, provided at top with a flaring and perforated ring, D, which extends from the drum and above the air-distributor f , in manner as represented. The chimney e and the distributor f are between two flat air-conduits, k l , that, arranged as shown, extend upward from the bottom of the cup B, and open through such.

40 These conduits project from the air-conduit g , and are conducted by a plate, i , so as to form with the three conduits g , k , and l an air chimney or duct, m , surrounding the foraminous air-chimney e , and opening through a foraminous head, n , at the upper end of the drum.

45 In the connection-plate i is a lighting-port, o , provided with a closing gate or slide, p . On raising the drum off the cup B, and the foraminous chimney off the wick-tube, and opening the port o , access can be had to the

wick for inflaming or setting fire to it, or extinguishing the flame, as occasion may require. In the bottom of the cup B are openings q , for admitting air into the drum. Near the top of the foraminous chimney e , there are openings r in the next adjacent parts of the vertical ducts k l .

In the operation of the apparatus, after the wick thereof may have been inflamed, air will pass upward into the space m' , and thence through the meshes or openings of the foraminous chimney and into the flame. It will also pass through the air-distributor f and the openings r into the flame at the upper part of the foraminous chimney, whereby the smoke and combustible gases resulting from the flame will be charged with oxygen and consumed to great advantage. Air will also pass up through the drum and its foraminous head, and, mingling with the escaping products of combustion, will operate to diffuse them equally through and out of the perforated ring D, upon which a vessel or article to be heated is to rest. The parts immediately surrounding the foraminous chimney will become heated, and the heat radiated from them will be intercepted by the air that may be in the drum, whereby such air will be caused to rise through the drum and its foraminous head, and utilize the heat to advantage by discharging it into the space within the ring.

My apparatus is designed to burn kerosene-oil or other hydrocarbon, and utilize it to great advantage for heating purposes, which is accomplished by thoroughly charging the flame of the wick with atmospheric air, not only directed into it laterally, on opposite sides of it, through the foraminous chimney, but downward and laterally into it by means of the foraminous air-distributor, so as to enter it and spread it more or less at its upper part, the carbonaceous and combustible gaseous products evolved from the flame being thereby burned with little or no light, but with very much heat.

I claim—

1. The combination of the foraminous chimney e and air-distributor f , and their air-supplying conduits, with the lamp A, all being arranged substantially as set forth.

2. The combination of the foraminous chim-

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ney *e* and air-distributor *f*, and their air-supplying conduits, with the lamp A, all being adapted and to operate substantially as set forth.

5 3. The combination of the cup B, perforated in its bottom, the dome C, perforated in its top, and the perforated ring D, with the lamp A, the foraminous chimney *e*, and air-distributor *f*, and their air-supplying conduits, arranged as set forth.

10 4. The combination of the cup B, perforated

in its bottom, the drum C, perforated in its top, and the perforated ring D, with the lamp A, the foraminous chimney *e*, and air-distributor *f*, and their air-supplying conduits, all being adapted and to operate substantially as represented. 15

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Witnesses:

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