

(No Model.)

M. MAHONY.

COMBINED HOT AIR AND WATER HEATER.

No. 387,309.

Patented Aug. 7, 1888.

Fig. 1

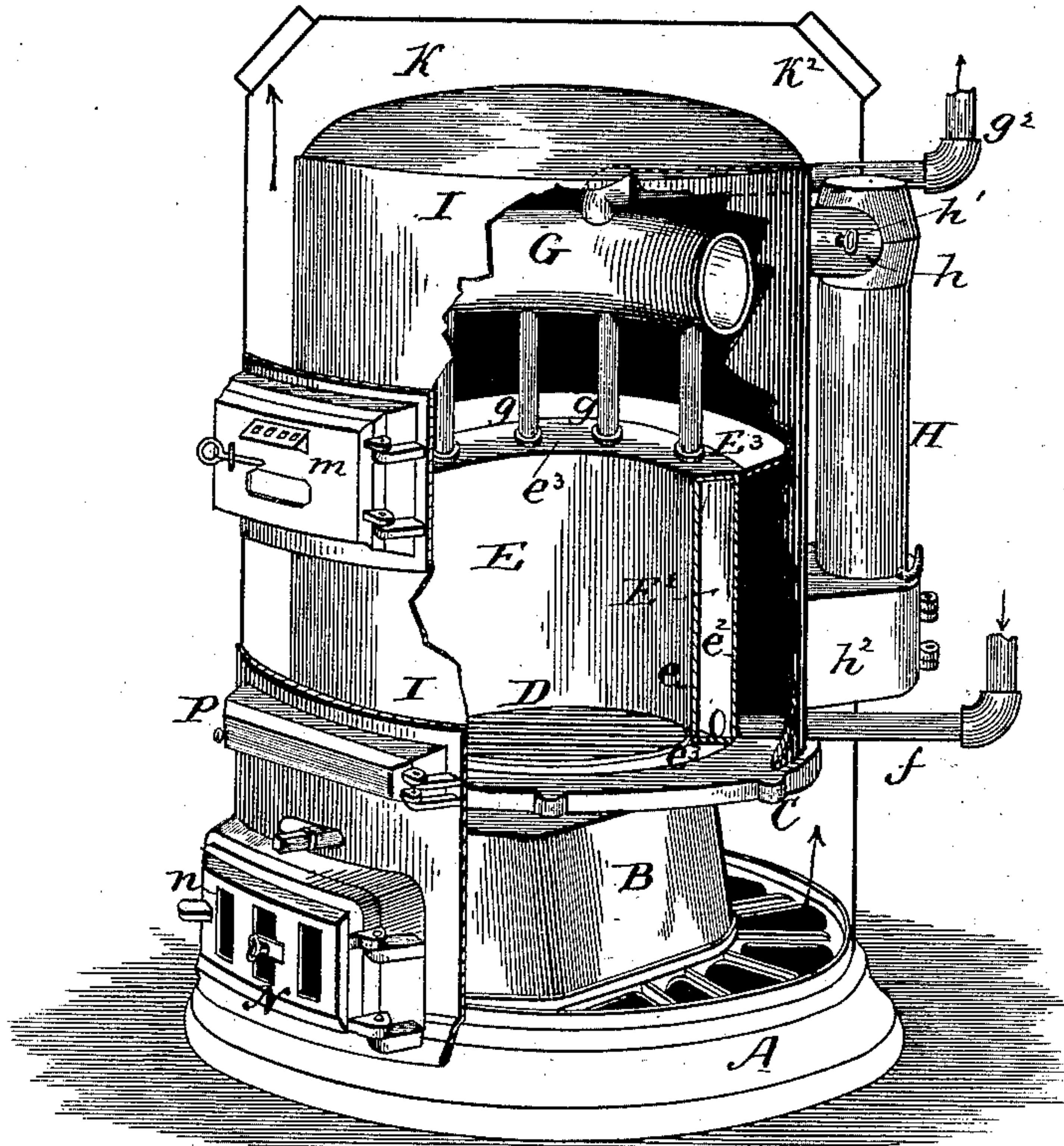
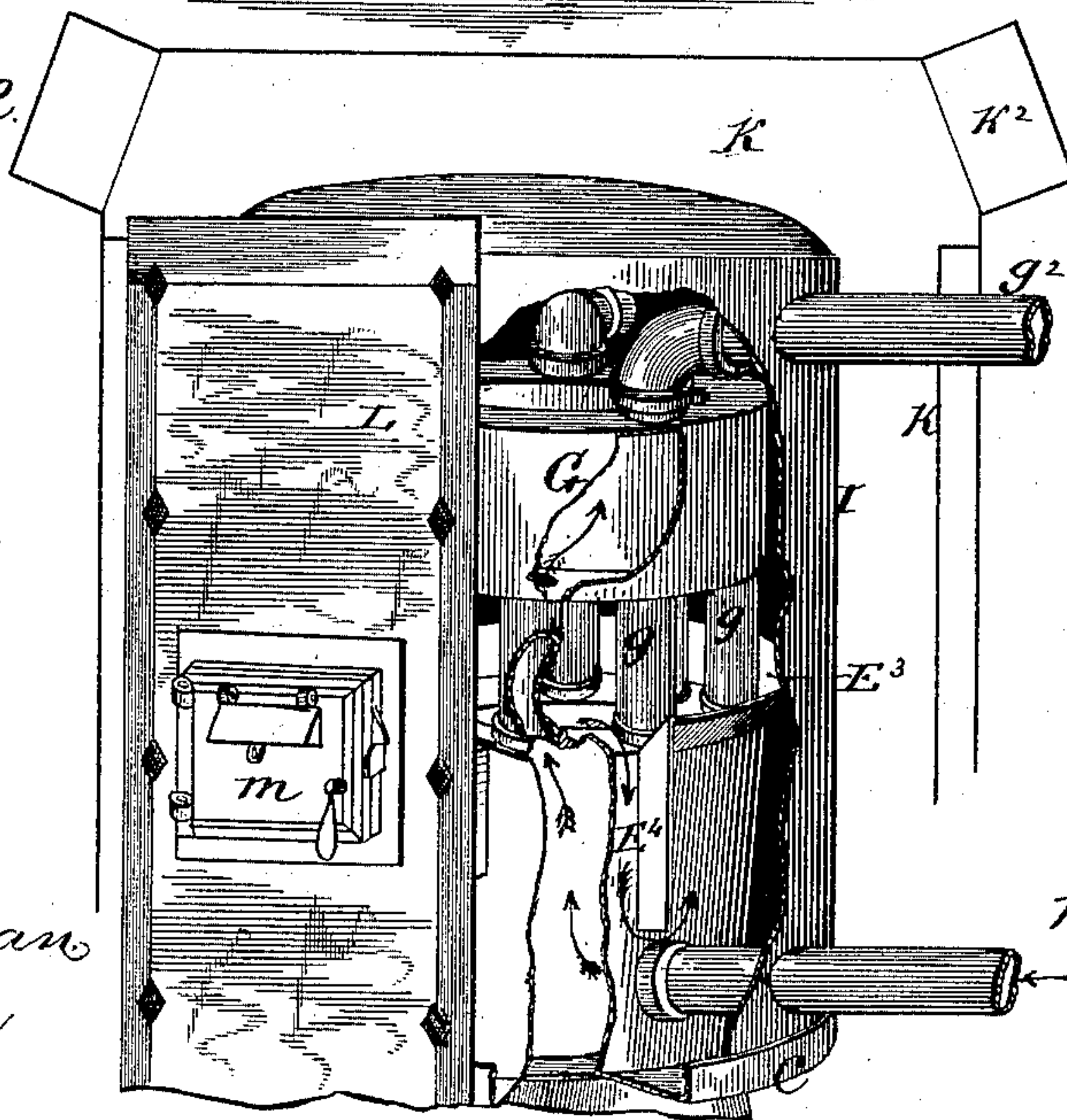


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

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COMBINED HOT AIR AND WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 387,309, dated August 7, 1888.

Application filed August 1, 1887. Serial No. 245,877. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MAHONY, a citizen of the United States, residing at Troy, in the county of Rensselaer, State of New York, have invented certain new and useful Improvements in Combined Hot Air and Water Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to furnaces for heating houses in which are combined the advantages obtained from air-furnaces, whereby a renewal of air properly heated is admitted into said houses with the economy of hot-water heaters, in which the caloric can be conducted through small pipes to any desired distance from the heater.

The object of my invention is to obtain a simple and inexpensively-constructed apparatus, either portable or brick-set, in which air and water can be heated and conducted to different rooms of houses.

In the accompanying drawings, Figure 1 is a perspective of a heater constructed in accordance with my invention, the side and jacket being broken away to show the hollow walls of the fire-pot and the superheater. Fig. 2 is a perspective view of the upper portion of the heater constructed in accordance with my invention, showing one of the smoke-deflecting plates and a cylindrical superheater.

In said drawings, A represents the hollow base-plate resting on the floor, through which air to be heated is brought into the apparatus, as in ordinary hot-air furnaces. It has the ash-pit B in the center thereof, upon which is placed the plate *c*, having in its center the grate D. Upon said plate is placed the fire-pot E, of cast-iron, made hollow, having inner walls, *e*, to retain the combustible upon the grate, outer walls, *e*², on the sides, and top and bottom walls, *e*³, these walls forming a chamber, E², in which water can be conducted through the pipe *f*, entering said walls close to the bottom thereof and be carried off through a pipe at the top, being heated by the inflamed combustible within said fire-pot.

To add to the heating capacity of the apparatus, there is above the fire-pot an annular hollow superheater, G, that is connected with

the upper edge of the hollow fire-pot by a series of vertical pipes, *g*, between which the flame and heated gases can pass on their way to the uptake H. To the top of the superheater are attached one or more pipes, *g*², to conduct the hot water to radiators, coils, or other equivalent devices used in rooms to heat the air or other substances therein. The fire-pot and superheater are inclosed in a drum, I, that rests upon the bottom plate, C. The top of said drum is closed, but its sides have two openings for the passage of smoke. The upper opening is connected with the flue *h*, that enters the uptake H at a high point, and is used mainly at the time a new fire is started. The lower opening is connected with the flue *h*², that enters the bottom of the uptake and gives an escape to the smoke when the damper *h*¹ in the flue *h* is closed. To cause the products of combustion to circulate evenly around the fire-pot the latter has encircling its upper end a division-plate, E³, that extends about two-thirds of its circumference, and from the ends of said plate are pendent deflecting-plates E⁴, Fig. 2, that extend about two-thirds of the distance down against the outer walls of the fire-pot.

The outer edge of the plates E³ E⁴ abut against the inner surface of the drum I and form with the latter and the fire-pot the inner smoke-flues of the device, and said device is inclosed, as usual, in a jacket, K, that may be single, as in Fig. 1, or double, as in Fig. 2, within which the air to be heated is made to circulate, and is conducted in any suitable direction from the openings K² in the top thereof. The front of the jacket may be in one piece, as L, Fig. 2, provided with fire-door *m*, or said door be fastened to the jacket, as in Fig. 1, and through the opening closed by said door the fuel can be introduced into the fire-pot. The ash-pit is also provided with a door, N, having regulable openings *n*, and between said doors there is a door, P, that closes an opening leading within the drum I, through which the ashes falling into the passage surrounding the fire-pot can be removed.

I am aware that fire-pots have been made hollow and provided with pipes for the passage of water in and out therefrom, and that

horizontal and vertical division-plates have been placed in the smoke-flues to deflect the products of combustion.

Having now fully described my invention, I
5 claim—

1. In a combined hot air and water heater, the combination of a hollow tubular fire-pot extending down to the level of the grate, a series of pipes secured vertically to the upper
10 end of said pot between its inner and outer edges and in communication with its interior, an annular superheater secured to the upper end of said pipes, a surrounding division-plate secured to the top of the fire-pot and having
15 pendent deflecting-plates at the ends thereof, a drum inclosing said fire-pot and superheater, an uptake leading from the top and also from the bottom of said drum, and a jacket inclosing said drum, substantially as described.

2. The combination of the ash-pit and its
top plate, a hollow tubular fire-pot, a series of
pipes secured to the upper end of said pot, an
annular superheater secured to the upper end
of said pipes, a drum resting upon the top
plate of the ash-pit, and a division-plate sur- 25
rounding the upper edge of the fire-pot, and
having its front edge extending down against
the upper half of said fire-pot, substantially as
and for the purpose described.

In testimony whereof I affix my signature in 30
presence of two witnesses.

MICHAEL MAHONY.

Witnesses:

COLE H. DENIO,
WILLIAM MAHONY.