

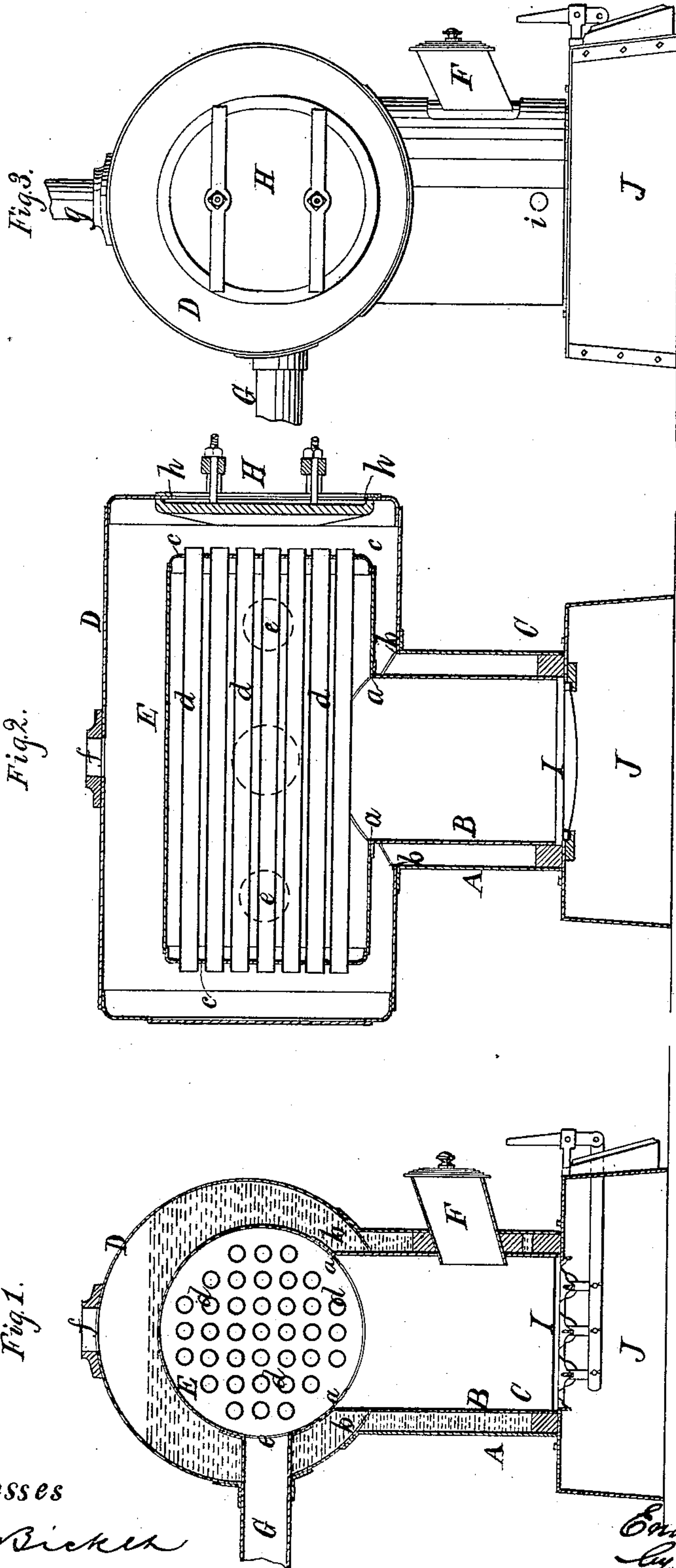
(No Model.)

E. RUTZLER.

BOILER.

No. 397,874.

Patented Feb. 12, 1889.



Witnesses
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UNITED STATES PATENT OFFICE.

ENOCH RUTZLER, OF BROOKLYN, NEW YORK.

BOILER.

SPECIFICATION forming part of Letters Patent No. 397,874, dated February 12, 1889.

Application filed December 1, 1888. Serial No. 292,416. (No model.)

To all whom it may concern:

Be it known that I, ENOCH RUTZLER, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and
5 useful Improvement in Boilers for Heating Purposes, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to obtain a
10 boiler of convenient form for heating dwelling-houses and other buildings, which shall be of simple construction, easily repaired and cleaned, and economical of fuel.

I will first describe with reference to the accompanying drawings a boiler embodying my
15 invention, and afterward point out its novelty in a claim.

Figures 1 and 2 in the drawings represent central vertical sections of a boiler, taken at
20 right angles to each other. Fig. 3 represents an end view of the same.

A B represent two upright cylinders arranged one within the other, the inner one, B, being rather higher than the outer one, A,
25 the two being connected at the bottom in any suitable manner, as by a base-ring, C.

D and E are two horizontal cylinders arranged one within the other. The inner cylinder, E, has an opening at *a* of a size and
30 form corresponding with the caliber of the upright cylinder B, and is connected with said cylinder B around said opening *a*. The outer cylinder, D, has in it an opening at *b* of a size and form corresponding with the
35 caliber of the outer upright cylinder, A, and is connected with said cylinder A around the said opening *b*. The heads *c* of the cylinder E constitute tube-sheets for the reception of horizontal tubes *d*, the open ends of which
40 are inserted into and secured in suitable holes provided for them in both the said tube-sheets.

The cylinders A B C D and tubes *d* constitute the essential parts of a boiler in which the water-space, or water and steam space,
45 consists of the space between the cylinders A B and the space between the cylinders D E and the interiors of the tubes *d*.

The interior of the cylinder B constitutes the fire-chamber having a feed opening at F,
50 and having a grate, I, at its bottom. The

space within the cylinder B and between the water-tubes constitutes a combustion-chamber in free communication with the fire-chamber through the opening at *a*. The cylinder E is provided with openings *e*, (one or more,) 55 with which are connected outlet-flues G, which pass through the wall of the cylinder D to communicate with the chimney or smoke-stack.

At the top of the cylinder D is an opening, *f*, (see Figs. 1 and 2,) at which is connected a steam-pipe or water-circulating pipe, *g*. (See Fig. 3.) Near the bottom of the cylinder C is an opening, *i*, for the connection of the
65 feed-pipe.

The boiler, as represented in the drawings, has provided in one end of the cylinder D an opening, *h*, of such size and form, and so arranged that by the removal of a man-hole plate, H, with which the said opening is fitted, free access to the tubes *d* may be had for
70 cleaning or repair. Such an opening and man-hole plate may be provided at either or both ends of the boiler. The boiler is also represented as set upon and secured to a hollow
75 base, J, which constitutes an ash-pit, and which may be large enough in all directions horizontally to constitute a firm support for the boiler. The boiler and base J may constitute one portable structure. This boiler
80 may be used for generating steam, in which case the water-supply will be so regulated that while properly covering the top of the cylinder E to a suitable depth it will leave room enough above for steam. Instead of
85 being used for generating steam, the boiler may be used for heating water for warming a dwelling or other building, in which case the water will fill the whole of the interior space.

In a boiler of this construction provision
90 is afforded for a large combustion-chamber within which the gases evolved from the fuel in the furnace and air supplied in sufficient quantity may enter into complete combustion, and in which the flame and heated products
95 of such combustion may act upon the large heating-surface constituted by the interior of the cylinder E and the tubes *d*. The form is such that a boiler of very considerable capacity may occupy comparatively little height, 100

so that it may be placed in an ordinary cellar, and yet it occupies comparatively little floor-space.

What I claim as my invention, and desire to
5 secure by Letters Patent, is—

The combination, in a boiler, of two upright cylinders, one of which, arranged within the other, constitutes a fire-chamber, two horizontal cylinders arranged one within the
10 other, with the inner one in communication with the inner upright cylinder and the outer one in communication with the outer upright cylinder, a series of tubes running through

the inner horizontal cylinder and opening into the outer horizontal cylinder, and an outlet-flue from the inner horizontal cylinder, the spaces between each inner cylinder and each outer cylinder and the interiors of said tubes all constituting water-spaces and the space within the inner horizontal cylinder and between the tubes constituting a combustion-chamber, substantially as herein specified.

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