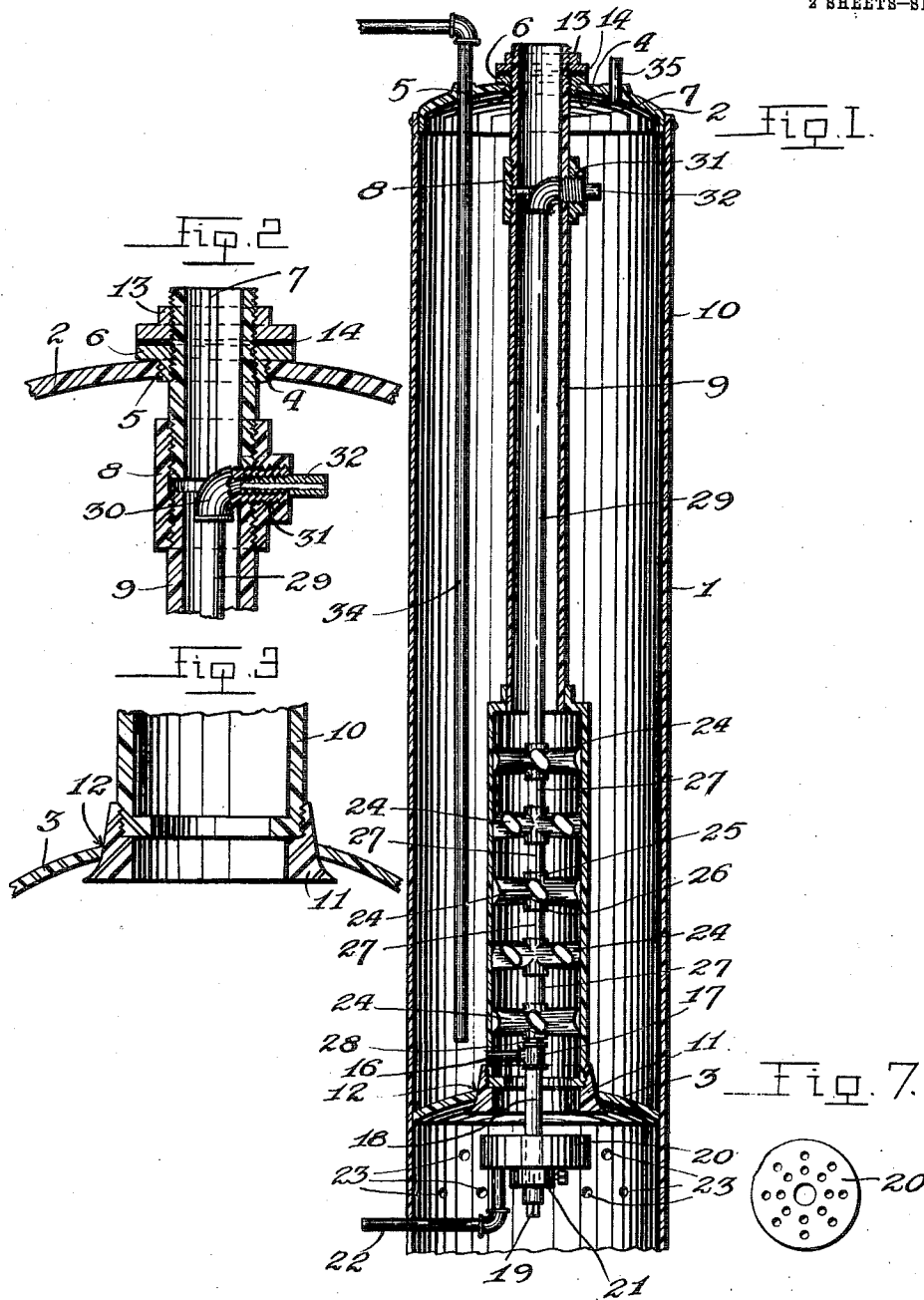


P. A. DEASY.
 COMBINED HEATER AND BOILER.
 APPLICATION FILED FEB. 26, 1910.

985,787.

Patented Mar. 7, 1911.

2 SHEETS-SHEET 1.



Witnesses
 Chas. Justice.
 H. C. Schroeder

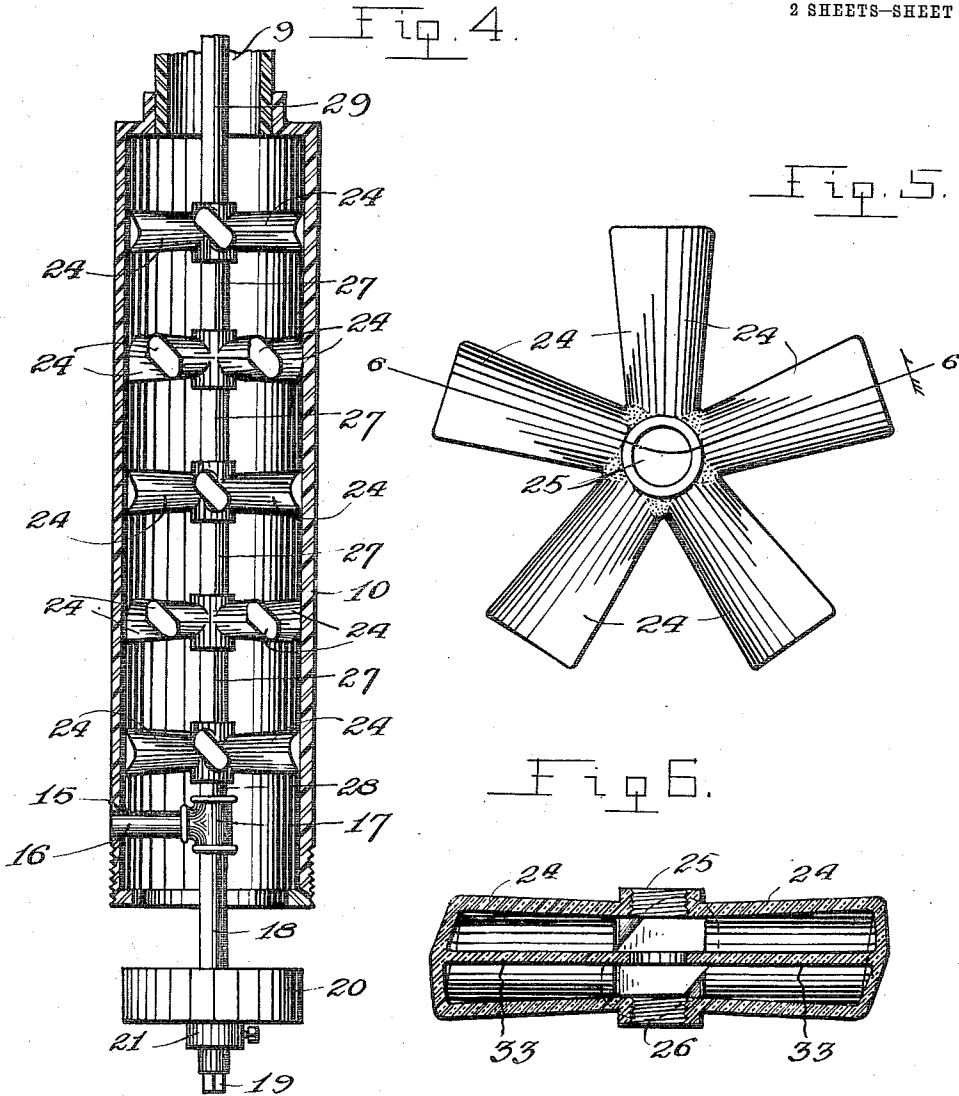
Inventor.
 Peter A. Deasy.
 By E. E. Trooman,
 Attorney.

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UNITED STATES PATENT OFFICE.

PETER A. DEASY, OF OAKLAND, CALIFORNIA, ASSIGNOR TO COLUMBIA COMBINATION BOILER AND HEATER COMPANY, A CORPORATION OF CALIFORNIA.

COMBINED HEATER AND BOILER.

985,787.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed February 26, 1910. Serial No. 546,132.

To all whom it may concern:

Be it known that I, PETER A. DEASY, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Combined Heaters and Boilers, of which the following is a specification.

This invention relates to water heating attachments for domestic boilers, and the principal object of the same is to provide a water heater that may be readily applied to the usual type of domestic boilers, and in which means are provided that assures of thorough heating of the water in a short time with the minimum fuel consumption.

In carrying out the objects of the invention generally stated above it will be understood, of course, that the essential features thereof are necessarily susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein:—

Figure 1 is a vertical sectional view showing the improved water heater applied to a boiler. Fig. 2 is a fragmentary sectional view showing the manner of connecting the upper portion of the heater to the upper portion of the boiler. Fig. 3 is a similar view showing the manner of connecting the base of the heater to the base of the boiler. Fig. 4 is an enlarged vertical sectional view of the improved water heater. Fig. 5 is a top plan view of one of the lugs of the water heater. Fig. 6 is a vertical sectional view taken on the line 6—6, Fig. 5. Fig. 7 is a top plan view of the burner used in connection with this invention.

Referring to said drawings by numerals, 1 designates the usual domestic boiler having the usual top 2 and a concaved bottom 3 that is set within the lower portion of the boiler above the bottom edges thereof. The top 2 is provided with a central threaded opening 4 with which the external threads of a sleeve 5 of a nut 6 engage. Said sleeve is also internally threaded for engagement with the externally threaded end of a pipe section 7 that projects into the boiler 1 and has a sleeve coupling connection 8 with a pipe 9 that projects from and communicates with the upper end of a heating dome 10 whose threaded lower end engages a threaded collar 11 that projects through a central

opening 12 in the bottom 3 of the boiler. Said collar tapers outwardly so that it will have a water-tight engagement with the edge of opening 12 when the dome is moved upward in boiler 1 by tightening nut 6. A lock nut 13 engages the upper end of pipe 7, said nut bearing upon a sealing gasket 14 that is seated on nut 6. At its lower end portion, dome 10 is provided with an opening 15 in which one end of a pipe 16 is mounted said pipe extending to a coupling 17 in the center of dome 10 which has a pipe 18 depending therefrom which projects through and below the open lower end of dome 10 and has its lower end sealed by a plug 19. A burner 20 is seated on a collar 21 adjustably mounted on the projected end portion of pipe 18, said burner being connected with a fuel supply pipe 22 that extends through the lower portion of dome 10. Said burner is inclosed by the lower portion of boiler 1 and said lower portion is provided with perforations 23 for feeding air to said burner.

A plurality of water heating lugs are arranged in spaced superimposed relation in dome 10, said lugs comprising a plurality of radiating hollow arms 24 which radiate from the upper and lower internally tubular extensions 25—26, each extension receiving a pipe section 27 by means of which said lugs are connected. The lower lug has a pipe connection 28 with the upper end of coupling 17, and the upper lug is connected to the lower end of a pipe 29 that is inclosed by flue pipe 9, said pipe 29 having an elbow 30 at its upper end that is externally threaded for engagement with a lateral opening 31 of coupling 8. Said elbow is also internally threaded at its discharge end for the reception of a discharge pipe 32. The arms 24 are horizontally arranged and are pitched at an oblique angle so that the heat passing through dome 10 will be deflected thereby. Each arm is internally provided with a flat, central longitudinal diaphragm 33 which agitates the water circulating through said arms so that scaling of the interior of the arms is prevented.

A cold water pipe 34 enters boiler 1 through its top and extends to the lower portion thereof. A pipe 35 projects from the top of boiler 1 for discharging hot water.

The circulation is as follows:—Water en-

ters the boiler through pipe 34 and passes into pipe 16 and through coupling 17 to the lowermost heating lug and thence through the connecting pipes and lugs to pipe 29, and from pipe 29 is discharged into the upper portion of boiler 1 through elbow 30 and discharge pipe 32. The heat from burner 20 enters the open bottom of dome, and is deflected over and about arms 24, thoroughly heating the same and escapes through flue pipes 9 and 7.

What I claim as my invention is:—

1. In a water heater of the character described, a boiler having a bottom with a central opening located a short distance within the lower open end of said boiler, a thick ring projecting up through said central opening in the bottom of the boiler and tapering outward and downward, a drum projecting upward in said boiler and having its lower end in threaded engagement with said ring, and of less diameter than the central opening in the bottom of the boiler, a pipe having its lower end connected with said drum and extending up through the boiler and out of the top of the same, a lock nut engaging the projecting upper end of said pipe and bearing against the top of said boiler, a water conducting pipe with

hollow radiating arms extending through said drum, and means for conducting heat through said drum and over said pipe and radiating arms.

2. In a device of the character described, a boiler having a convex bottom within the same at a short distance from its lower open end and provided with a central opening, a thick downward and outwardly tapering ring projecting up through said opening, a vertical drum having its lower end in threaded engagement with said ring, heating means located beneath the lower end of said drum, a pipe having its lower end connected with the top of said drum and projecting up through said boiler and out of the top of the same, a water pipe projecting up through said drum, said pipe having hollow water radiating arms in said drum, and a lock nut on the upper projecting end of said pipe and bearing against the top of said boiler.

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

PETER A. DEASY.

Witnesses:

H. C. SCHROEDER,
F. P. SCHROEDER.