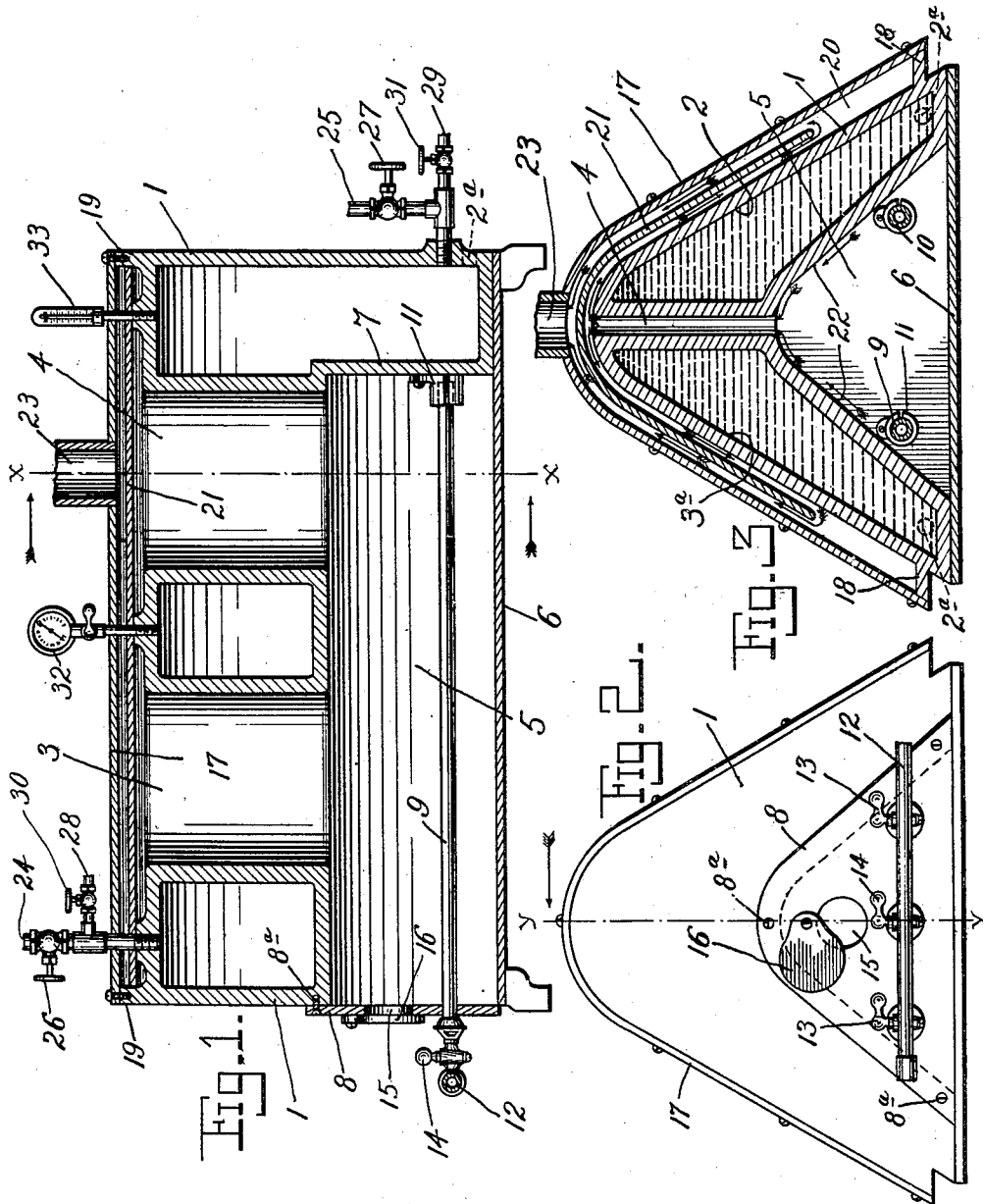


G. E. TOEPFER.
WATER HEATER.
APPLICATION FILED FEB. 23, 1912.

1,060,959.

Patented May 6, 1913.



Witnesses
Jas. E. Dodge,
H. C. Murray.

Inventor
Gerhart E. Toepfer,

By

H. H. Byrnes,

Attorney

UNITED STATES PATENT OFFICE.

GERHART E. TOEPPER, OF WASHINGTON, DISTRICT OF COLUMBIA.

WATER-HEATER.

1,060,959.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed February 23, 1912. Serial No. 679,220.

To all whom it may concern:

Be it known that I, GERHART E. TOEPPER, a citizen of the United States, residing at No. 1327 Emerson street northeast, Washington, in the District of Columbia, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification.

The present invention relates to water heaters, and more especially to a device of that character which is heated by gas, as distinct from coal or other fuel, and has for its purpose to provide an arrangement wherein the heater is applicable to be installed in a dwelling for heating the same by the hot water system.

The invention further proposes a practical construction of the character mentioned which will effectively answer all of the purposes of the usual fuel heater as now employed, but which will satisfactorily eliminate all of the disadvantages attending the use of such boiler, and which disadvantages are well known and need not be referred to herein.

The invention further contemplates a gas heated and portable boiler which is in the main constructed of a single unit thereby avoiding the faults incident to joints or the like, as when the boiler is made up of unit sections; and it is further intended that the construction and design of the boiler disclosed herein shall be easy to control, and present a neat and attractive appearance when installed.

With these and other objects in view the invention consists in the arrangement and combination of parts hereinafter claimed, and, while the invention is not restricted to the exact details shown and described, still, for the purpose of disclosure, reference is had to the accompanying drawing, in which like reference characters designate the same parts in the several views, and in which,

Figure 1 is a central longitudinal sectional view of the boiler taken on the line Y—Y of Fig. 2; Fig. 2 is a front end elevation of the boiler, with parts omitted; and Fig. 3 is a transverse sectional view thereof taken on the line X—X of Fig. 1.

Referring to the construction in detail, the boiler consists of a main unit 1, which is of a single casting, as above-mentioned, and which is of substantially triangular design in cross section, as shown in Figs. 2 and 3.

The unit 1 is divided longitudinally into two sections 2 and 3^a, which provide the water containers of the boiler. The intermediate portion of the unit is designed to provide flues or passageways 3 and 4 for directing the products of combustion from the heating chamber 5, which is located beneath and centrally of the boiler sections 2 and 3.

A plate 6 is suitably secured to the underside of the unit 1 and provides, with the rear wall 7 and front wall 8, a substantially closed chamber for the gas pipes 9 and 10 to which burners of any appropriate type are connected. The wall 8 consists of a plate removably secured to the front of the boiler unit 1 through the medium of screws 8^a, whereby said plate may be readily detached for obvious reasons. Said pipes 9 and 10 pass through the front wall 8 and are secured to the rear wall 7 through the medium of collars 11, and are connected to communicate with the source of gas supply through the medium of the pipe 12 (see Fig. 2). At the points of connection with said supply pipe, each of the burner pipes 9 and 10 is fitted with a rotary valve 13. A pilot burner (not shown) is provided with a similar rotary valve 14, and, through the medium of said pilot burner, the jets on the burner pipes 9 and 10 are lighted. Access is had to said pilot burner through an opening 15 formed in the front wall 8 and a closure piece 16 is provided for closing said opening, though the opening may be used as an air inlet for the burner chamber 5, if desired.

A hood 17 overlies the outer wall of the boiler unit 1, and is held in spaced relation therefrom through the medium of the lateral flanges 18 and vertical flanges 19, said latter flanges being continuations of the front and rear walls of the main section 1. This spacing of the hood 17 from the exterior side walls of the section 1 provides a chamber 20 for the passage of the heated gases from the burner pipes 9 and 10, whereby to obtain the maximum efficiency from the heating flame, as will be understood. To further retard the heating gases, there is provided an inner hood 21 which extends to either side of the section 1 where it serves in the capacity of baffle plates. Said baffle plates divide the space 20 into two passageways, which cause the products of combustion to take that course indicated by the

arrows in Fig. 3. With this arrangement, it will be clearly seen that the outer side walls of the unit parts 2 and 3 are subjected to the heated gases over such a period of time as
 5 will utilize the heating efficiency of said gases to the maximum degree. Before the passage of the gases about the baffle plates, said gases are first brought into direct contact with the surfaces 22 and hence they
 10 pass through the flues or passageways 3 and 4 where they give up more of their heat previous to their entry through the passageways to either side of the baffle plates. And finally the gases, after having given up their
 15 heat, are allowed to pass off through the flue 23 leading to the atmosphere.

When the boiler is employed for heating water in a hot water system, the same is connected to cause a continuous flow through
 20 the different radiators through the medium of the pipes 24 and 25 having each a controlling valve (26 and 27), and of which pipes the former provides the outlet and the latter the return.

25 It is proposed that the present invention be equally applicable to serve as a domestic boiler, should such be desired, and, to that end, there are provided pipes 28 and 29 which lead respectively to and from the
 30 point of use. Said pipes 28 and 29 are fitted with controlling valves 30 and 31, as shown.

A gage 32 is provided for the purpose of reading the amount of pressure within the boiler, and for ascertaining the temperature
 35 therein there is also provided a thermometer 33.

It is obvious that those skilled in the art

may vary the details of construction and arrangement of parts, without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claim. 40

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is: 45

In a water heating boiler, the combination of a main cast unit of substantially triangular design in cross section and providing communicating water chambers; a plate secured to the underside of said cast unit and providing a closed heating chamber, with the inner side walls thereof; gas burner pipes located within said heating chamber; the outer side walls of said main section being provided with flanges; a hood overlying the outer side walls of the unit and secured to said flanges and providing a closed chamber; a second hood located within said chamber and spaced from said hood and the outer side walls of said unit and providing baffle plates for retarding the progress of the heating gases; means associated with said main section for providing a hot water heating system; and auxiliary means associated therewith for providing a domestic boiler, substantially as described. 50 55 60 65

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

GERHART E. TOEPPER.

Witnesses:

ARTHUR J. WAND,
 H. M. HOWARD.