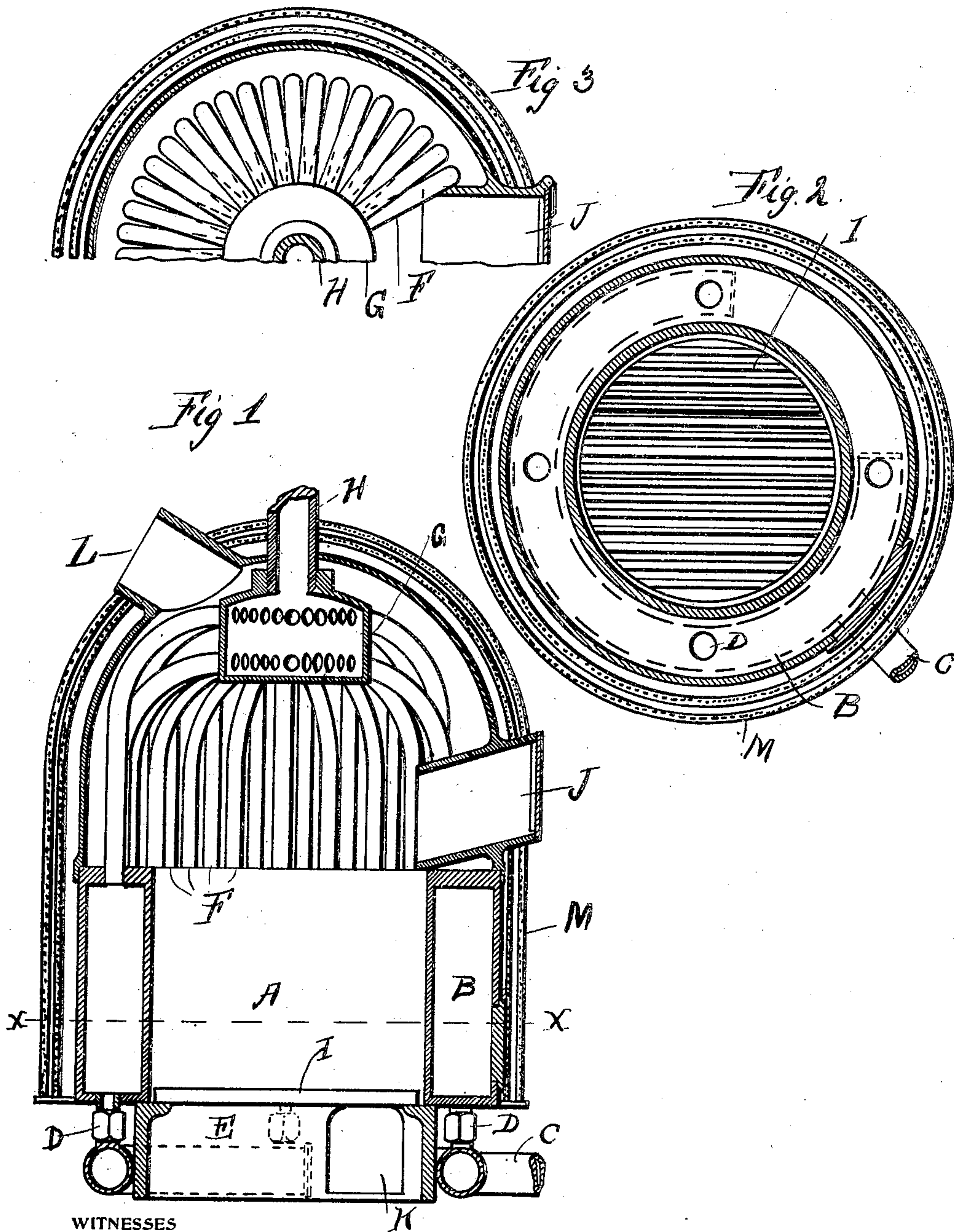


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HOT WATER HEATER.  
APPLICATION FILED JULY 17, 1908.

922,051.

Patented May 18, 1909.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## HOT-WATER HEATER.

No. 922,051.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed July 17, 1908. Serial No. 444,067.

*To all whom it may concern:*

Be it known that I, THOMAS J. SHEARMAN, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Hot-Water Heaters, of which the following is a specification.

My invention relates to a new and useful improvement in hot water heaters, and has for its object to provide an exceedingly simple and effective construction by which almost the entire heat generated in the fire box will be utilized for heating water, and a further object of my invention is to provide for the expansion and contraction of the tubes in such manner as to avoid the liability of straining the joints by the changes of temperature.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same I will describe its construction in detail referring by letter to the accompanying drawing forming a part of this specification in which—

Figure 1, is a vertical section of a heater made in accordance with my invention, Fig. 2, a section at the line X—X of Fig. 1, and Fig. 3, a plan view of one half of the heater.

In carrying out my invention as here embodied, A represents the fire box which has formed therewith the water tank B, with this tank is connected the supply pipe C by short pipes D and the supply pipe C is preferably circular, surrounding the ash pit E.

F represents a series of tubes which are connected with the upper portion of the tank B and extend upward and curved inward and are connected with the dome G over the top of which latter leads the service pipe H.

I represents the grate bars which may be of any suitable design or construction and J is a chute, by means of which fuel is fed to the fire box, while K represents the ash pit door and L is a pipe leading to the chimney or flue.

M is a casing which incloses the heater and

may be of sheet metal, cast iron or brick work as best suits the requirements in any particular case.

From the foregoing description it will be seen that the heat generated from the fire box will be largely absorbed by the water contained in the tank B and the heated gases which pass upward from the fire bed will come in contact with the tubes F will further raise the temperature of the water within and as these gases must strike against and be deflected on the bottom of the dome G the heat from said gases will be further absorbed so that when the gases pass out through the pipe L but little heat will be permitted to escape to the chimney.

Where the heater is used in a return system, C would represent the return pipe by which the water would be conveyed back to the heater and H the uptake pipe through which the water would flow upward through the system and where the heater is used for supplying a flow of hot water the pipe C would be connected with the water supply and the pipe H would convey the water from the heater to the point where it was to be used. On account of the tubes F being curved inward the expansion and contraction caused by the variance in temperature will not seriously affect the joints of these tubes as will be readily understood.

By experiment I have found that a heater made in accordance with my improvement is exceedingly efficient, raising the temperature of the water with but little consumption of fuel.

Having thus fully described my invention, what I claim as new and useful is—

1. In a heater of the character described, a circular fire box, a water tank formed with said box, a circular supply pipe, short pipes leading from said supply pipes to the tank, a series of bent tubes leading upward from the water tank, a central dome with which the bent tubes are connected and a pipe leading from the top of the dome, as specified.

2. The herein described combination of a circular fire box, a circular water tank formed therewith, a circular supply pipe, short pipes connecting said supply pipes with said tank, a series of bent tubes leading upward from the tank, a central dome with

which the bent tubes are connected a pipe leading from the top of the dome, a casing enclosing the heater, a pipe L leading from the heater for the escape of the products of combustion and a chute for supplying fuel to the  
5 fire box, as specified.

In testimony whereof, I have hereunto af-

fixed my signature in the presence of two subscribing witnesses.

THOMAS J. SHEARMAN.

Witnesses:

H. A. TRAYNOR,  
A. M. LORDON.