March 19, 1929. O. F. NELSSON 1,706,036

WATER HEATER

Filed March 31, 1927

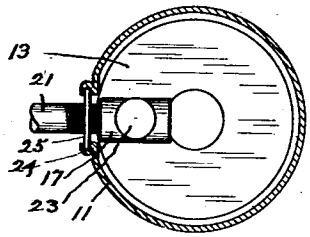


Fig 1

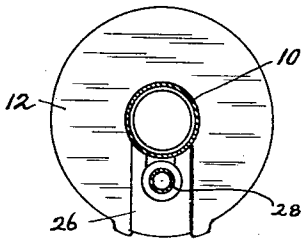


Fig 2

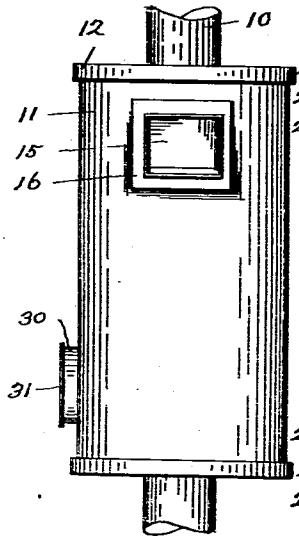


Fig 3

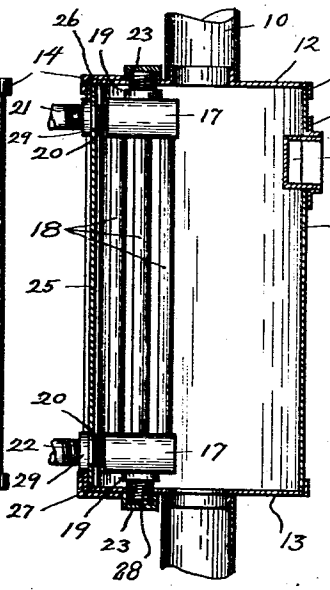


Fig 4

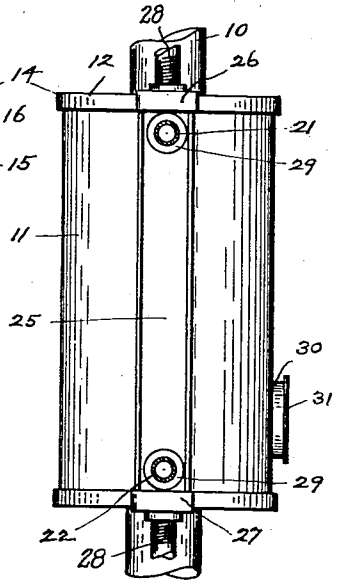


Fig 5

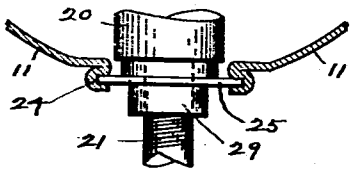


Fig 6

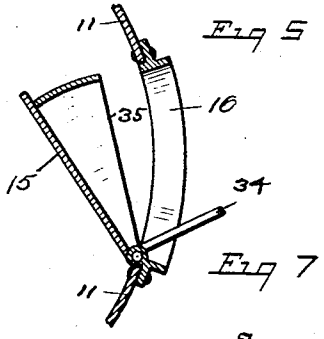


Fig 7

Inventor

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By his Attorney

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Patented Mar. 19, 1929. 1,706,036

UNITED STATES PATENT OFFICE.

OTTO F. NELSSON, OF POUGHKEEPSIE, NEW YORK.

WATER HEATER.

Application filed March 31, 1927. Serial No. 179,871.

This invention relates to a novel water heater of that class which is incorporated in a drum located in the smoke pipe of a furnace or stove and through which the smoke and hot air pass to the chimney, and during their passage through said drum they heat the water or other liquid which is contained in and passes through said heater.

The object of the present invention is to provide a heater of this class that shall be simple of construction, contain few parts, easily installed, and so constructed that the water unit or container may be removed from the drum for the purpose of cleaning or renewing the parts.

Another object being to provide in a heater of the drum type, a water container that shall provide a large heating surface to the action of the smoke and heat, and also be provided with means for regulating the heat.

With these and other objects in view, my invention consists in certain combination and construction of parts as will be fully described and claimed in the annexed specification and illustrated in the accompanying drawings which form a part thereof and in which like figures of reference refer to corresponding parts in all of the views, but it is fully understood that slight changes may be made without departing from the spirit of the invention.

In the drawings:

Figure 1 shows a cross sectional view of the heater without the damper, but showing the style of header used.

Figure 2 is a top plan view of the heater.

Figure 3 is a front elevation of the heater.

Figure 4 is a vertical sectional view of the heater, showing the construction of the same.

Figure 5 is a rear elevation of the heater, showing the means for removing the water container.

Figure 6 is an enlarged detail view showing the construction.

Figure 7 is an enlarged detail view of the damper construction.

Referring to the drawings:

The usual smoke pipe or flue 10 is divided and the drum 11 is mounted therein, and the smoke and heat has a free passage therethrough.

The drum 11 is constructed of suitable material in the form of a cylinder, closed on the ends by a top 12 and a bottom 13, both provided with the flanges 14 which embrace the ends of the drum 11 and which are secured thereto in any suitable manner such as welding or by rivets, and each of these ends 12 and 13 are provided with a flange or collar to hold the smoke pipe 10, and at a suitable point near the top of said drum 11 is provided an opening which is closed by a damper 15 mounted in a frame 16 secured to said drum 11.

Within said drum 11 is placed the water container or unit, which comprises two headers 17, which are secured together by a series of pipes 18 to form a water heater, which will have a large heating surface, as a number of small pipes will not only present a greater surface to the heat, but by confining the water in a small space it will heat much quicker than it would in a large single pipe or spiral coil.

Each of these headers 17 is formed with a side outlet 19 and an end outlet 20, to either of which the water pipes 21 and 22 may be secured, the other outlets being closed by the caps 23.

For mounting the water unit in the drum 11, the drum 11 is formed on its rear with a cut out portion extending from top to bottom, and the adjacent edges are folded as shown in Figure 6, to form a groove 24, within which is slidably mounted a slide 25, which is formed with two holes near its ends, through which the inlet and outlet water pipes 21 and 22 may pass.

The top and bottom of said drum are also formed with openings extending from the edge inward towards the center and which are also provided with similar grooves and with the slides 26 and 27, which are formed with a cutout rear portion designed to embrace the water pipes or the nipples 28 as the case may be, and close the drum, rendering the same smoke tight.

For securing the unit in the slides 25 and 26 and 27, the slide 25 is first placed over the pipes 21 and 22, and the collars 29 are secured on said pipes in contact with the surface of said slide 25; and this unit is slid into the grooves 24; the top and bottom slides 28 and 27 are then put in place and secured by the caps 23.

This arrangement allows of the removal of the water unit for the purpose of cleaning or renewal of parts. Also the drum 11 may be provided with side inlets 30 for the smoke pipe 10, such being closed by caps 31 when not used.

For regulating the amount of heat applied to the water container, the drum 11 is pro-

vided near the upper end with a damper 15 which is mounted in a frame 16 secured to the drum and said damper is pivoted therein and actuated by a handle 34.

Said damper 15 swings inwardly, and is provided with the flanges or wings 35, on the bottom, top and near the end opposite the hinge thereof which tend to deflect the cold air and prevent its direct action on the water container, thus mixing cold air with the smoke and heat without producing a chill on the water pipes.

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

1. A water heater of the class described, comprising a drum formed with smoke pipe connections, and an opening in one side thereof, a slide adapted to cover said opening, the top and bottom of said drum also provided with openings, and slides for covering the same, a water container mounted within said drum, water connections extending through said slides and means for securing said slides to said water connections and to said drum.

2. In a liquid heater of the class described, comprising a drum formed with smoke pipe connections, and an opening in the side thereof, a cover for said opening, a liquid container mounted within said drum, water connections extending through said cover and secured therein, of a damper mounted in said drum opposite said liquid container, and means comprising a flange attached to said damper for preventing a direct draft upon the liquid container.

3. In a liquid heater of the class described, comprising a heating drum formed with openings in its side, top and bottom, covers adapted to be secured adjacent said openings for covering the same, a liquid container mounted within said drum, inlets and outlets secured to said container and extending through said covers and secured thereto, a deflecting damper secured to said drum and means attached to said damper for preventing a direct draft upon said container.

In testimony whereof I hereunto affix my signature.

OTTO F. NELSSON.