March 31, 1925. 1,531,348

A. RICHARDSON

SEDIMENT SCRAPER FOR WATER HEATERS

Filed May 17, 1922

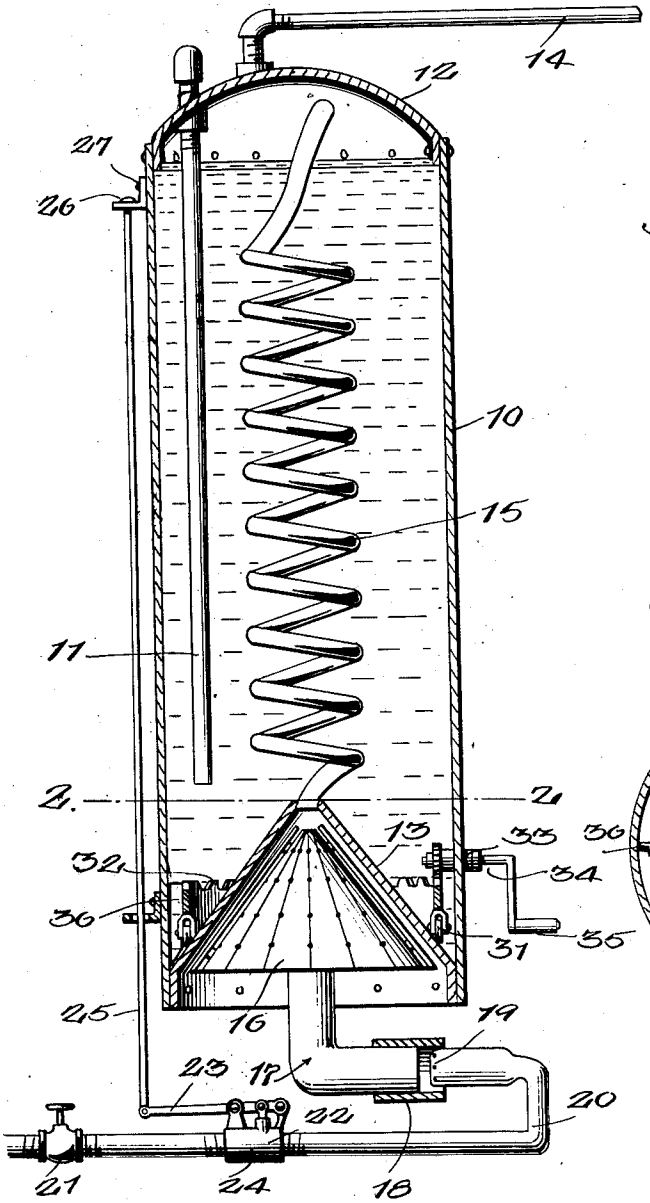
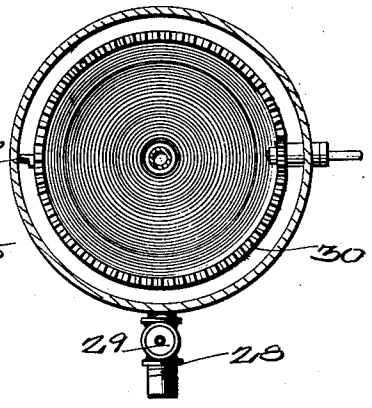


Fig. 1.

Fig. 2.



WITNESSES

George C. Hayes

INVENTOR

A. RICHARDSON,

BY Munn & Co.

ATTORNEYS

Patented Mar. 31, 1925. 1,531,348

UNITED STATES PATENT OFFICE.

ALFRED RICHARDSON, OF NELSONVILLE, OHIO.

SEDIMENT SCRAPER FOR WATER HEATERS.

Application filed May 17, 1922. Serial No. 561,685.

To all whom it may concern:

Be it known that I, ALFRED RICHARDSON, a citizen of the United States, and a resident of Nelsonville, in the county of Athens and State of Ohio, have invented certain new and useful Improvements in Sediment Scrapers for Water Heaters, of which the following is a specification.

My present invention relates generally to heating apparatus and more particularly to a domestic heater, my object being the provision of a simple inexpensive apparatus which may be heated by a gaseous fuel, in which thorough complete combustion of the fuel is provided for, in which rapid continuous heating of the water is accomplished, in which the discharge of sediment and settlings may be readily and easily effected, and in which automatic control of the heating burner is carried out.

In the accompanying drawing which illustrates my present invention and forms a part of this specification.

Figure 1 is a central vertical section through my improved apparatus, and

Figure 2 is a horizontal section taken on line 2—2 of Figure 1.

Referring now to these figures my invention proposes a domestic water heater including an upright cylindrical tank 10, into which water flows through an inlet pipe 11 leading downwardly through the rounded top 12 and opening at its lower outlet end at a point spaced above the conical base 13. From the rounded top 12 the hot water outlet pipe 14 extends so that the water may be withdrawn after it is heated and passed upwardly around the axially disposed heating coil 15 whose lower end opens through the apex of the conical base 13, and whose upper end opens through the rounded top 12.

Below and within the base 13 is a conical flame spreader 16 which may be of any suitable material as for instance terra cotta, to which the mixture of air and gas is fed, through a burner pipe 17, the outer end of which supports an axially adjustable air valve in the form of a sleeve 18 telescoped on the burner pipe 17 and within which a perforate crowned gas nozzle 19 of the gas supply pipe 20 opens. This gas supply pipe may have the usual cut off valve 21 and is also provided with a controlling valve as at 22, the latter of which is actuated by virtue of the pivotal connection of its stem intermediate the ends of a lever 23. This lever is pivotally supported at one end at 24 and has its opposite end connected to the lower end of a rod or other member 25 passing upwardly along the tank 10 and secured at its upper end at 26 to a bracket 27 so that as the tank heats and cools and respectively expands and contracts, it is obvious that the regulating valve 22 will be automatically controlled to cut down and increase the gas supply to the burner during operation of the heater. It is of course contemplated for this purpose that the tank 10 will be rigidly supported at its lower end in any suitable manner so that its vertical or lengthwise expansion will automatically adjust the valve.

For the purpose of discharging sediment and settlings within the bottom of the tank 10, the latter has adjacent to the lower outer edge of its conical base 13 a valved drain pipe 28, seen in Figure 2, the valve of which is seen at 29, and around and upon the lower portion of the upper inner surface of this conical base 13 is a scraping ring 30 at spaced points around the lower edge of which rollers 31 are supported for anti-friction bearing upon the conical base, and around the upper edge of which are series of teeth 32, the latter engaged by the gear 33 upon a shaft 34 journaled through the side wall of the tank 10 and provided with an external crank 35. This ring has an external blade 36 which extends toward and in close proximity to the inner surface of the tank 10 and also extends downwardly in interfitting relation within the lower portion of the tank between the latter and the lower portion of its conical base 13 so that it is obvious that by opening the drain valve 29 and then rotating the crank 35, the ring 30 will be rotated and its scraping blade 36 shifted around and within the sediment or settling space so as to assist in its discharge without flowing water through the discharge pipe 28.

In use, and assuming the gaseous burner has been lighted, the flames and other parts of combustion flow upwardly through the axial heating coil 15 and by virtue of their spreading at the spreader 16 it is quite obvious thorough and complete combustion will take place so that the remaining products upon escape from the upper end of the heating coil which opens through the tank top 12 will cause little if any discomfort or danger.

As the water circulates upwardly through

the tank 10, it is constantly heated by virtue of its intimate contact with the coil 15, and may be withdrawn from the top of the tank through the hot water supply pipe 14.

I claim:

A domestic water heater including a tank having a valved drain therein adjacent to its base, a ring rotatably seated within the tank edgewise on the tank base and having a scraper outstanding therefrom against the inner surface of the tank, said ring having an upper toothed edge, and a shaft journaled through the wall of the tank, having a gear at its inner end engaging the toothed edge of the ring and having a crank at its outer end externally of the tank, for the purpose described.

ALFRED RICHARDSON.