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WATER HEATER

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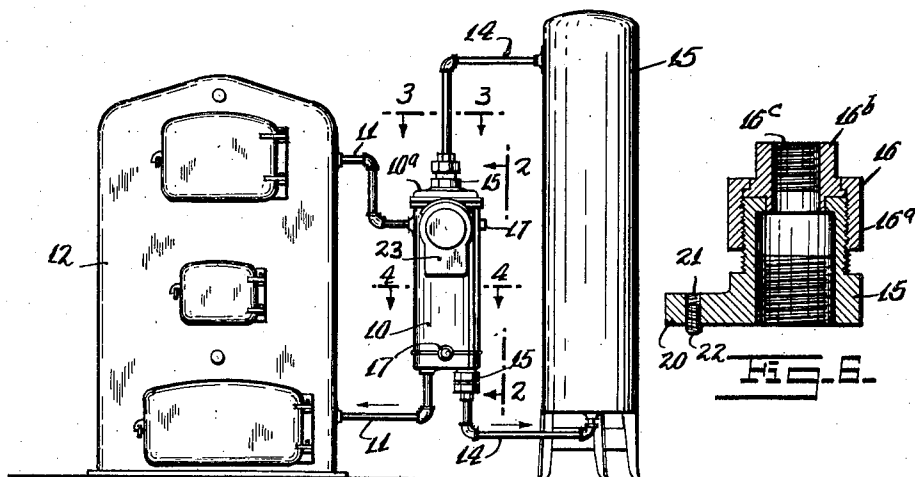


Fig. 1.

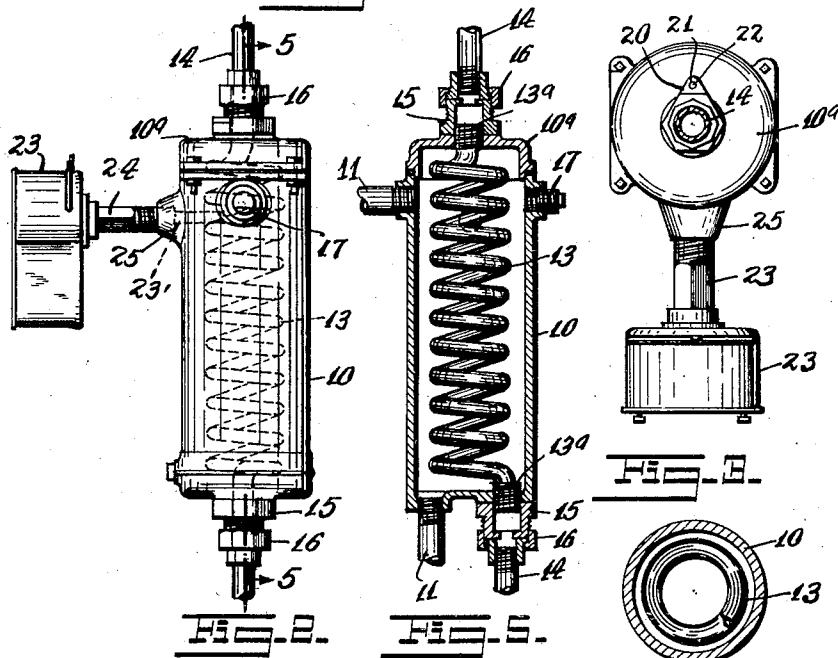


Fig. 2.

Fig. 3.

Fig. 4.

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WATER HEATER

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6 Claims. (Cl. 257—229)

This invention relates to new and useful improvements in a water heater.

The invention has for an object the construction of certain portions of the heater in such a manner that the heater may be assembled and operated with great efficiency.

In prior types of water heaters great difficulty has been experienced with the connection of pipes to the interior coil thereof, since the operation of coupling the pipes and coil generally resulted in loosening of certain parts, with resultant leakage.

It is an object of this invention to use fittings provided with offset lugs having set screws adapted to be clamped against the ends of the water drum of the heater in such a manner that the fittings are firmly connected with the ends of the coil, which construction allows operation of the conventional couplings without loosening of the parts.

It is a further object of this invention to arrange the lugs and fittings integral with each other.

Still further, the invention contemplates an arrangement wherein lugs are substantially horizontal and formed with threaded openings for the set screws which are disposed vertically.

Another one of the objects of this invention is the arrangement wherein the fittings previously mentioned may be locked into fixed positions, and simultaneously certain turns of the coil of the water heater be compressed towards each other for the purpose of better engaging the operator of an aquastat associated with the drum of the water heater, and adapted to control a boiler which supplies the heating medium for the heater.

Still further the invention contemplates the construction of a device of the class mentioned which is simple and durable and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:—

Fig. 1 is an elevational view of a water heater according to this invention, shown in an installation ready for use.

Fig. 2 is a fragmentary elevational view looking in the direction of line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is an enlarged vertical sectional view of one of the fittings and associated couplings of the device.

The invention relates to a water heater comprising a water drum 10 with connections 11 for the circulation of heated water from some foreign source, as for example, a boiler 12, and a coil 13 within the drum and associated with the connections 14 for water to be heated. The connections 14 connect with a storage tank 15.

The drum 10 is formed with a removable head 10^a so that the coil 13 may be engaged therein. The coil 13 is provided with ends 13^a having threaded portions extending through but not screwed into openings in the ends of the drum so that the threaded portions extend past the ends of the drum. Fittings 15 threadedly engage upon the ends 13^a and abut against the ends of the drum so as to form a water tight joint. Couplings 16 connect with the bushings 15 and with the pipes 14. The pipes 11 connect with the interior of the drum at points remote from each other, that is, one pipe is at the top and one at the bottom. The drum 10 is formed with several plugged openings 17 by which the interior may be cleaned when desired.

The invention provides for lugs 20 associated with the fittings 15 in such a manner that the fittings may be locked into fixed positions relative to the threaded ends 13^a of the coil. It has been found that if the fittings are not locked, when the couplings 16 are operated, there is a tendency to loosen the fittings from the ends of the coil with resultant leakage. The lugs 20 are shown in Figs. 3 and 6, to be integral with the fittings and to be provided with threaded openings 21 extended in from the top. Set screws 22 threadedly engage through these openings and are adapted to abut against the ends of the drum for locking the fittings 15 in positions as stated. The couplings 16 comprise a coupling section 16^a threadedly engaged upon the end of each of the fittings and adapted to clamp a coupling section 16^b in such a manner as to form a water tight joint, and so as to allow relative unscrewing of the section 16^a to disconnect the coupling. The sections 16^b are formed with tapped openings 16^c into which the pipes 14 are engaged.

The boiler 12 may be of any design or construction.

struction, or any of the known types of heaters may be substituted therefor, for example, a sectional radiator or a fuel burner heater. It is required that the contraption 12 be adapted to supply heated water through the lines 11 so as to circulate the heated water among the turns of the coil 13 for the transfer of heat to the water within the coil.

An aquastat 23 is mounted upon the drum 10 and is adapted to control the heater 12. The connection between the aquastat and heater is not given in this specification since it forms no part of this invention, and in the art, aquastats and similar contrivances are generally known for the identical purposes. The aquastat 23 is shown supported on a tube 24 which threadedly engages into a boss 25 upon the side of the drum 10. The operator 23' of the aquastat extends through the tube 24 and engages between a pair of the turns of the coil 13. When the water in the coil 13 is below a certain temperature, the aquastat will function to regulate the heater 12 to supply more heat and in this manner the temperature of the indirect heater water supply may be fairly accurately controlled.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. In a water heater, a water drum with connections for the circulation of heated water, a coil extending through said drum and having threaded ends projecting through openings in the ends of the drum, a fitting threadedly engaged on each of said threaded ends and screwed down for closing the openings in the drum through which the coil ends project, connections for cold water to circulate through said coil including couplings connected with said fittings, and a lug on each fitting provided with a set screw for engaging the drum to lock the fitting in position.

2. In a water heater, a water drum with connections for the circulation of heated water, a coil extending through said drum and having threaded ends projecting through openings in the ends of the drum, a fitting threadedly engaged on each of said threaded ends and screwed down for closing the openings in the drum through which the coil ends project, connections for cold water to circulate through said coil including couplings connected with said fittings and a lug on each fitting provided with a set screw for engaging the drum to lock the fitting in position, said lugs being integral with the fittings.

3. In a water heater, a water drum with connections for the circulation of heated water, a coil extending through said drum and having threaded

ends projecting through openings in the ends of the drum, a fitting threadedly engaged on each of said threaded ends and screwed down for closing the openings in the drum through which the coil ends project, connections for cold water to circulate through said coil including couplings connected with said fittings, and a lug on each fitting provided with a set screw for engaging the drum to lock the fitting in position, said lugs being provided with threaded openings, and said set screw engaging through said threaded openings.

4. In a water heater, a water drum with connections for the circulation of heated water, a coil extending through said drum and having threaded ends projecting through openings in the ends of the drum, a fitting threadedly engaged on each of said threaded ends and screwed down for closing the openings in the drum through which the coil ends project, connections for cold water to circulate through said coil including couplings connected with said fittings, a lug on each fitting provided with a set screw for engaging the drum to lock the fitting in position, and an aquastat mounted on the drum for controlling a heater for supplying said heated water, and having an operator rod contacting with said coil.

5. In a water heater, a water drum with connections for the circulation of heated water, a coil extending through said drum and having threaded ends projecting through openings in the ends of the drum, a fitting threadedly engaged on each of said threaded ends and screwed down for closing the openings in the drum through which the coil ends project, connections for cold water to circulate through said coil including couplings connected with said fittings, a lug on each fitting provided with a set screw for engaging the drum to lock the fitting in position, and an aquastat mounted on the drum for controlling a heater for supplying said heated water and having an operator rod contacting with said coil, said operator rod contacting with the turns of said coil.

6. In a water heater, a water drum with connections for the circulation of heated water, a coil extending through said drum and having threaded ends projecting through openings in the ends of the drum, a fitting threadedly engaged on each of said threaded ends and screwed down for closing the openings in the drum through which the coil ends project, connections for cold water to circulate through said coil including couplings connected with said fittings, a lug on each fitting provided with a set screw for engaging the drum to lock the fitting in position, and an aquastat mounted on the drum for controlling a heater for supplying said heated water, said aquastat having an operator rod contacting with said coil, said operator rod contacting with the turns of said coil, and engaging between adjacent turns of the coil.

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