

June 21, 1949.

E. S. BAGLEY  
UNIT WATER HEATER

2,473,560

Filed Aug. 29, 1946

2 Sheets-Sheet 1

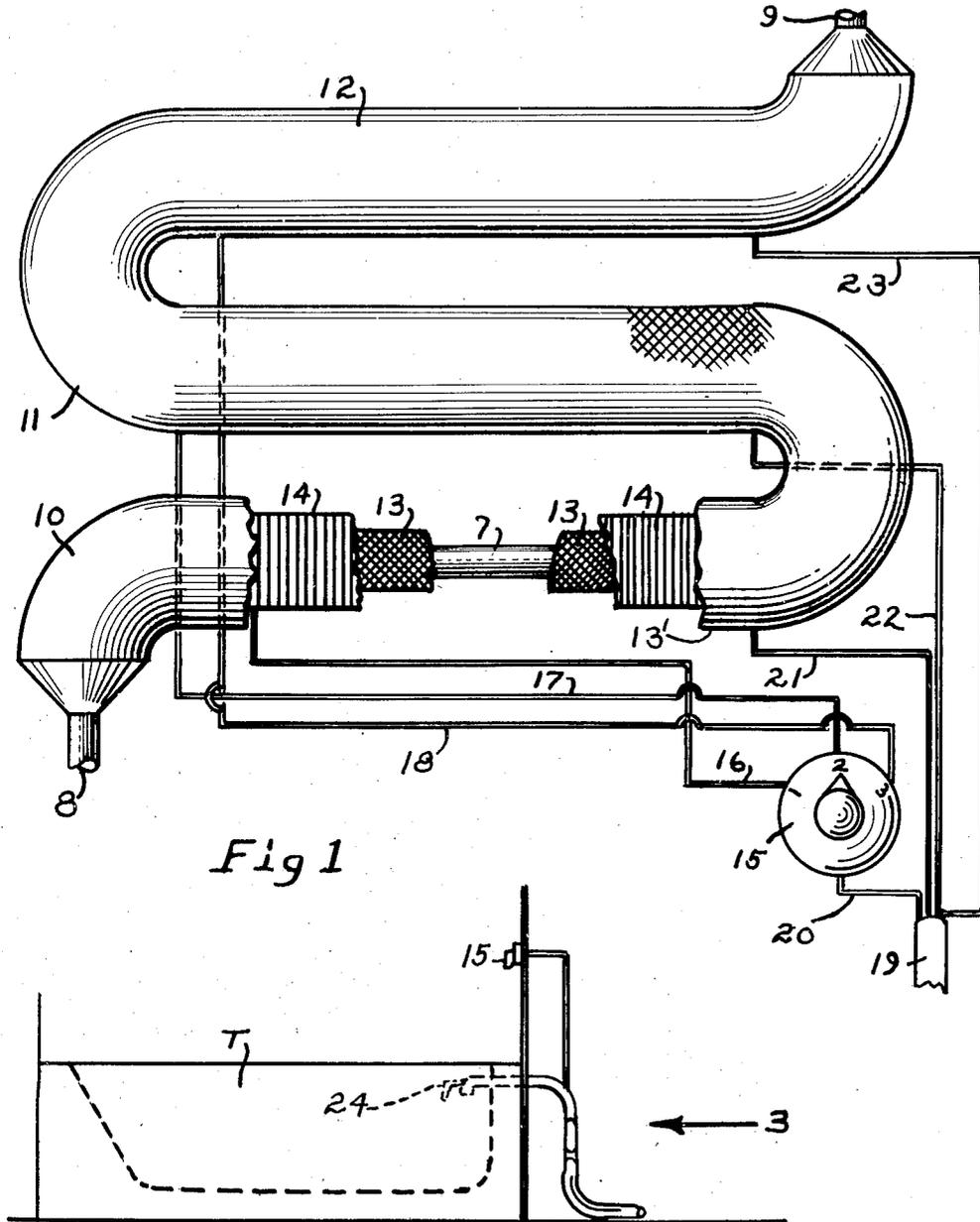


Fig 1

Fig 2

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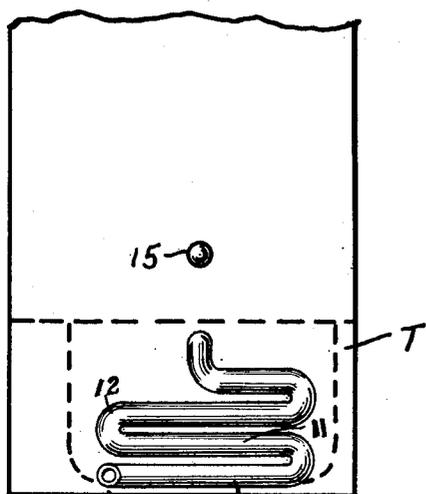


Fig 3

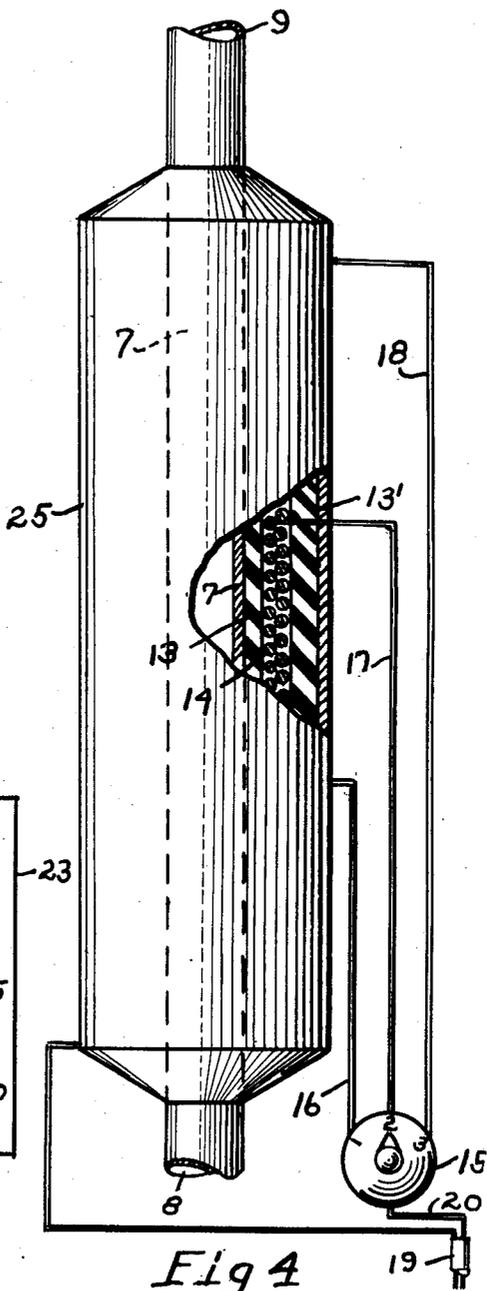


Fig 4

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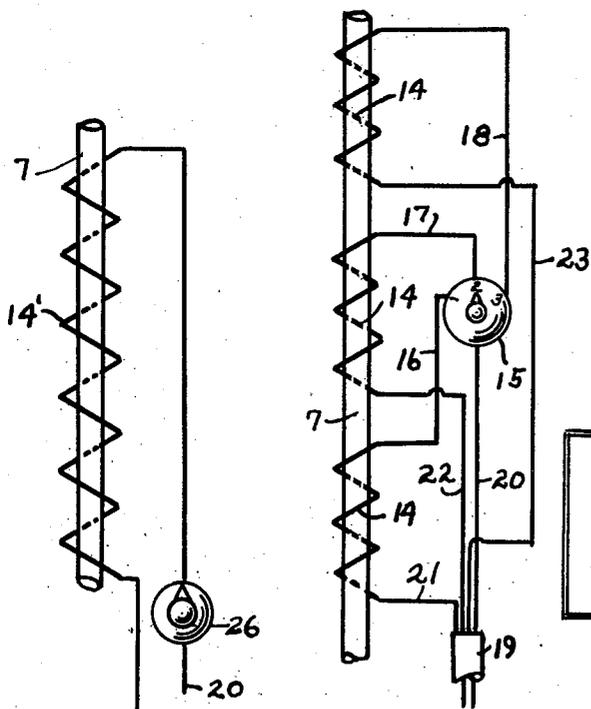


Fig 5

Fig 6

## UNITED STATES PATENT OFFICE

2,473,560

## UNIT WATER HEATER

Edward S. Bagley, New Orleans, La.

Application August 29, 1946, Serial No. 693,713

1 Claim. (Cl. 219—39)

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My invention relates to unit water heaters. An object of the invention is to provide a decentralized hot water system in which individual electric heaters are provided for the different places where the use of hot water is desired. The number of such units would, of course, vary according to the number of places where hot water should be provided. For the average small one bath room residence only three units would be required to provide for wash bowl, tub and shower combination, and kitchen sink. Another object is to provide a construction in which the user will not be liable to suffer an electric shock.

The novel features which I believe to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to organization and operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings in which,

Fig. 1 is a diagrammatic view.

Fig. 2 is a side elevational view.

Fig. 3 is an end view looking in the direction of the arrow 3 in Fig. 2.

Fig. 4 is a diagrammatic view of a modified form.

Fig. 5 is a diagrammatic view of another modified form.

Fig. 6 is a diagrammatic view showing wiring connections for three separate heating coils.

Referring first more particularly to the construction shown in Fig. 1, the numeral 7 designates a section of a water supply pipe in which 8 is the inlet end and 9 is the outlet end. In this view, 10 designates a primary heating tube, 11 designates a secondary heating tube, and 12 designates a tertiary heating tube, these tubes being connected with each other in zig-zag manner. The water supply pipe 7 passes centrally through these three tubes. The portions of the pipe 7 which pass straight through the tubes are covered with electrical insulation 13 around which heating coils such as the coil 14 are wound spaced inwardly from the walls of the tubes. It will be understood as a matter of course that the tubes may be provided with heat insulation 13'.

A four way switch 15 having three contact points is provided in proximity to the receptacle or place to which hot water is to be supplied. The first contact point of the switch is connected by a wire 16 with the heating coil which is in the tube 10. The second contact point is connected by a wire 17 with the heating coil which

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is in the tube 11. The third contact point is connected by a wire 18 with the heating coil which is in the tube 12. It will, of course, be understood that when the switch 15 is in off or neutral position, no heat will be supplied to the water supply pipe 7 and this pipe serves as a cold water pipe. When this switch is on contact 1, only the coil in the tube 10 is heated; when associated with the contacts 1 and 2, the coils in the tubes 10 and 11 will be heated; and when placed in association with contacts 1, 2, and 3 the coils in the tubes 10, 11 and 12 will be heated. Provision is thus made for low, medium, and high heat. In the drawing, the pointer associated with the switch is shown registering with contact 2 which indicates that for this position, current is passing through the wires 16 and 17 for obtaining medium heating of the water.

The numeral 19 designates an electrical cable containing a wire 20 connected to and adapted to supply current to the switch 15. The coil in the tube 10 is connected to a return wire 21, the coil in the tube 11 is connected to a return wire 22, and the coil in the tube 12 is connected to a return wire 23.

For the purpose of illustrating the installation of this system as a unit heater, Figs. 2 and 3 show it installed in connection with a tub T. The water supply pipe 7 is shown provided with the customary faucet 24 having no connection whatever with the switch 15. Therefore, a single pipe serves both as a cold water pipe and a hot water pipe thus greatly lessening plumbing costs of installation. It will be understood as a matter of course that the same economical principle exists no matter with what type of receptacle or place the supply pipe is associated.

Fig. 4 shows a modified form of construction in which a cylindrical casing 25 is placed around and spaced from the pipe 7. This part of the pipe is covered with electrical insulation 13 and three separate heating coils such as the coil 14 are wound around this insulation with the coils covered with insulation 13'. A switch 15 of the character and installation previously described is provided. The first contact point of the switch is connected by a wire 16 with the first one of the coils 14. The second contact point is connected by a wire 17 with the second coil. The third contact point is connected by a wire 18 with the third coil. Fig. 6 shows in detail the wiring connections for the three heating coils.

Fig. 5 shows a modification in which the supply pipe 7 is provided with a single heating coil 14' which is connected to a rheostat 26 which takes

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the place of a four-way switch for obtaining different degrees of heat.

The operation and advantages of my invention will be apparent in connection with the foregoing description and the accompanying drawings. This system is less expensive to operate than a central heating plant because hot water is obtained at only the particular place desired and for only the desired time. The heating of the water is obtained almost instantaneously. There is a saving on the cost of plumbing since one supply pipe serves both as a cold and a hot water pipe. Since there is no electrical connection between the faucet and any part of the electrical circuit, insurance against electric shock is provided.

I claim:

In a water heater for supplying low, medium and high heat interchangeably to water, the combination of a single water supply pipe, three separate heating coils around different portions of said pipe respectively, a four way electric switch having three contact points, an electrical cable, a wire in said cable for supplying current to said switch, a wire connecting the first contact with the first coil, a wire connecting the second con-

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tact with the second coil while the first contact is connected with the first coil, a wire connecting the third contact with the third coil while the first and second contacts are connected with the first and second coils respectively, a return wire leading from the first coil to said cable, a return wire leading from the second coil to said cable, a return wire leading from the third coil to said cable, and a faucet on the delivery end of said supply pipe in non-current relation to said switch.

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