W. COLEBROOK.

WATER HEATER.

APPLICATION FILED SEPT. 20, 1920.

1,419,225. Patented June 13, 1922.

FIG. 1.

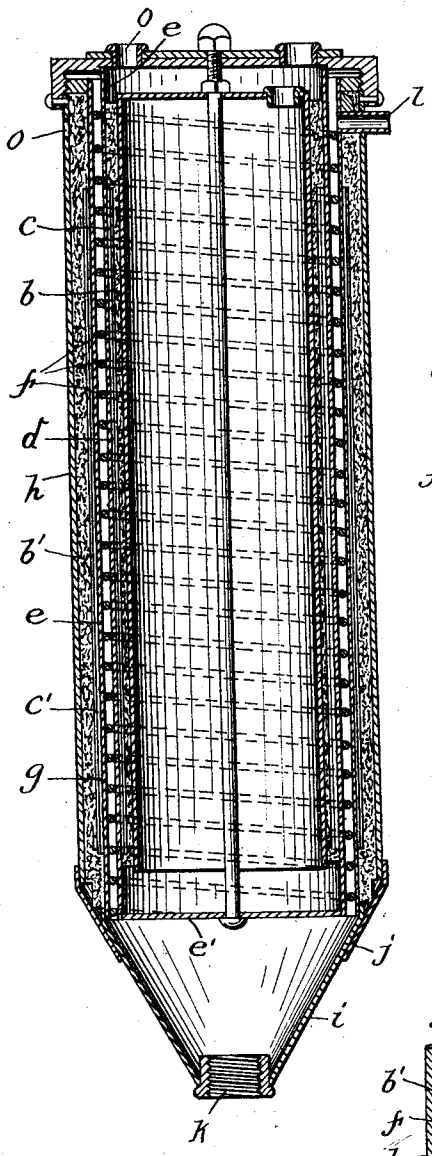
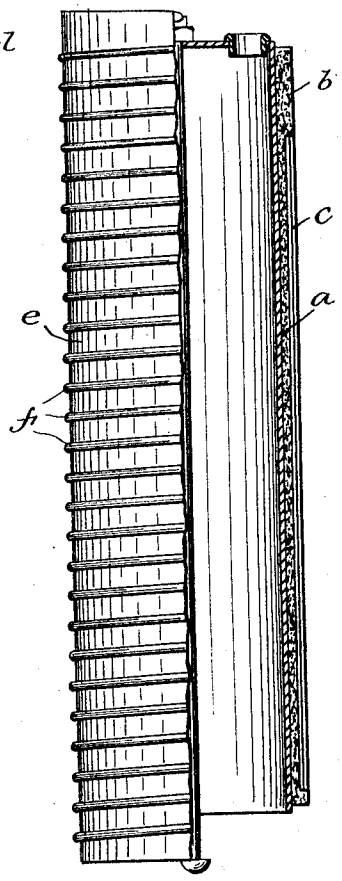


FIG. 2.



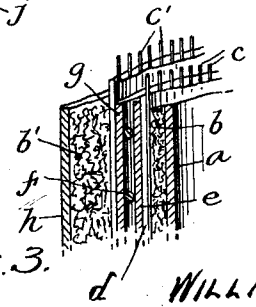


FIG. 3.

Inventor:

WILLIAM COLEBROOK

By [signature] Atty.

UNITED STATES PATENT OFFICE.

WILLIAM COLEBROOK, OF DURBAN, NATAL, SOUTH AFRICA.

WATER HEATER.

1,419,225. Specification of Letters Patent. Patented June 13, 1922.

Application filed September 20, 1920. Serial No. 411,592.

To all whom it may concern:

Be it known that I, WILLIAM COLEBROOK, a subject of the King of Great Britain and Ireland, and a resident of Durban, Natal Province, Union of South Africa, have invented a certain new and useful Improvement in Water Heaters, of which the following is a specification.

This invention relates to a water heater wherein the water is heated in a continuous stream by means of an apparatus which can be attached to any suitable water supply pipe.

One of the objects of the present invention is to provide means for heating water which is led into the apparatus and caused to flow in a thin spiral stream around or near a source of heat, consequently resulting in a continuous flow of heated water directly the apparatus is set in action. The flow continues until the heat or water supply is cut off. This has manifest advantages over the known apparatus wherein a bulk of water (as distinct from a thin flowing stream) has to be slowly heated, used, the apparatus refilled, and action started again.

Any suitable source of heat may be used in carrying out the principles indicated above, and a practical example showing the use of electric heating elements is hereinafter described and illustrated in the accompanying drawing, wherein:

Figure 1 is a vertical section.

Figure 2 is a detail elevation partly in section of two interior members detached; and,

Figure 3 is a fragmentary view of the section (Figure 1) enlarged.

In the drawings, *a* is an inner core member which may be packed with asbestos or the like. This is surrounded by heat insulation packing *b*, against which are arranged electric heating elements *c* enclosed in mica or other insulation *d*. A further cylinder *e* fits over the heating element, and cylinder *e* is formed with a spiral projection *f*, which may be metal wire. An outer composite cover consisting of cylinder *g* and shell *h* fits tightly over the projection *f*, to leave a spiral passage therebetween.

Between *g* and *h* extra heating elements *c'* and packing *b'* are disposed. A conical water inlet *i* is secured to the bottom of the cylinder *g*, and a rim *j* on the bottom of the shell *h* lies thereagainst when assembled. The bottom of cylinder *e* is closed at *e'*, so that water entering at the union *k* travels into the spiral passage between *e* and *g*, and thence upwards to the exit *l*, being heated in its passage by the elements *c* and *c'*.

Any other means of causing a thin stream of water to travel in a spiral passage over a source of heat continuously from inlet *i* to outlet *l* (such as a thin spiral tube) may be substituted.

A top cap *m* is secured to the outer shell *h* and a central screwed rod *n* completes the fitment. Orifices *o* are proivded for the electrical leads from the elements *c* and *c'*.

I claim:—

1. A water heater including a pair of tubular members arranged to provide a space therebetween, a member arranged in said space between the tubular members to provide a spiral water passageway therebetween, heat insulating means surrounding the outer tubular member, electrical heating means embedded in the insulation, a cap for one end of the tubular members, an inlet spout carried by the opposite end of the tubular members and arranged in communication with the outer end of the spiral passageway provided therebetween, and an exterior casing arranged between the said cap and the inlet spout.

2. A water heater including a pair of tubular members arranged to provide a space therebetween, means arranged in said space between the tubular members to provide a spiral water passage, a heat insulating covering for the inner face of the inner tubular member, an insulating covering for the outer tubular member, electrical heating means embedded in the insulation for both the inner and outer tubular members, a cap for one end of the tubular members, a spout for the opposite end of said members and means for holding the cap in assembled relation to said tubular members.

3. A water heater comprising a core member, a layer of heat insulation lying thereabout, electric heating elements suitably insulated disposed on said heat insulation, a surrounding cylinder fitting over the afore-

said assembly of features against the heating elements, a spiral projection on said surrounding cylinder, an outer cylinder tightly fitting against the spiral projection to constitute a spiral water passage, and an outer casing spaced from the last mentioned outer cylinder by heating elements, and heat insulation, there being a suitable cover to the device, water inlet and outlet and means to lead off the electrical wires.

In testimony whereof I have affixed my signature hereto this first day of September, 1920.

WILLIAM COLEBROOK.