

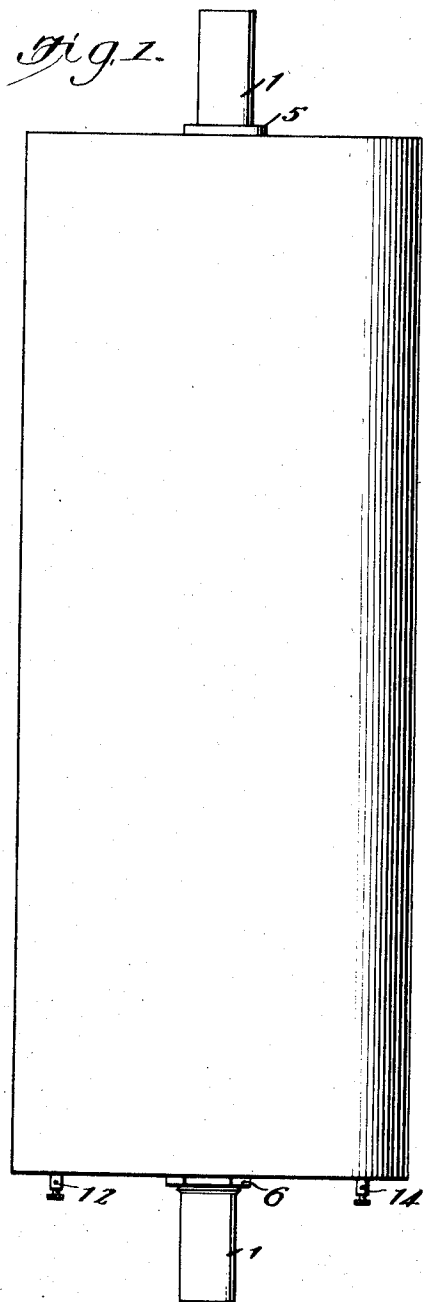
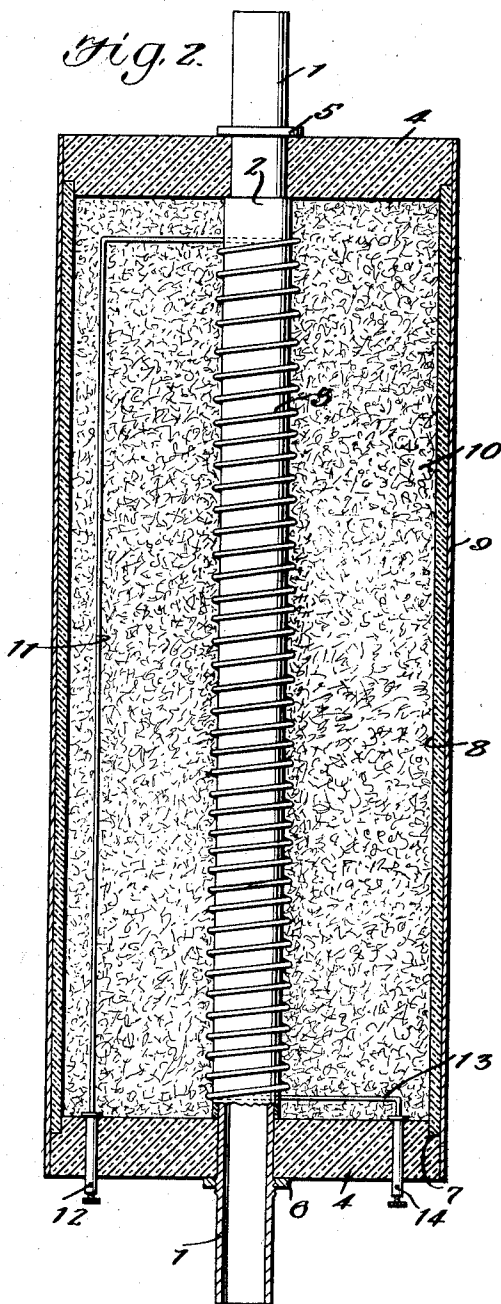
B. W. MACY.
ELECTRIC LIQUID HEATER.

APPLICATION FILED JAN. 5, 1920. RENEWED DEC. 11, 1920.

1,369,900.

Patented Mar. 1, 1921.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

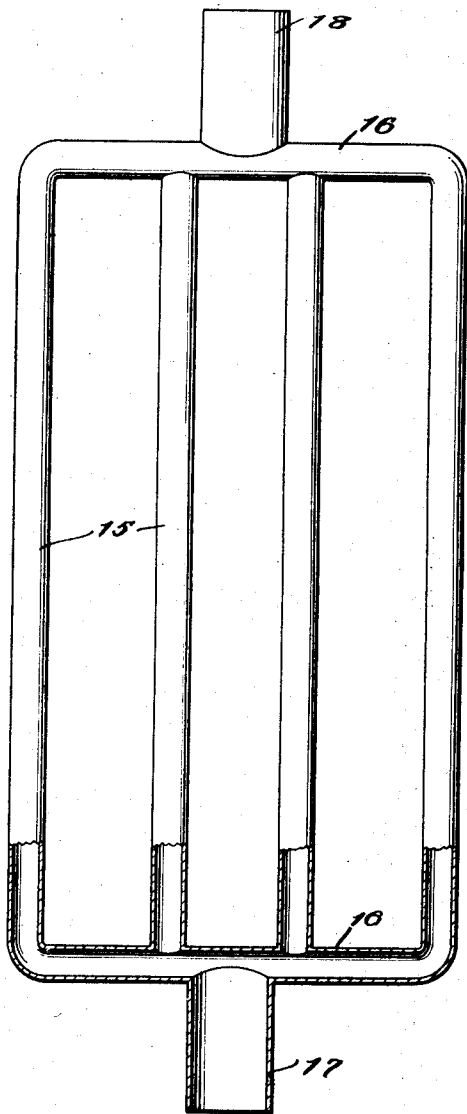


Fig. 3.

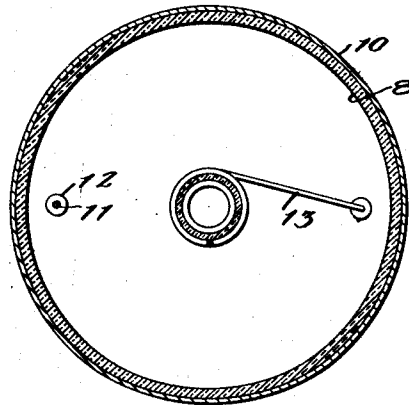
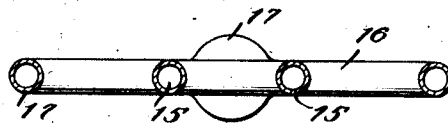


Fig. 5.

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UNITED STATES PATENT OFFICE.

BARNETT WRIGHT MACY, OF JACKSONVILLE, FLORIDA, ASSIGNOR OF ONE-HALF TO
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ELECTRIC LIQUID-HEATER.

1,369,900.

Specification of Letters Patent.

Patented Mar. 1, 1921.

Application filed January 5, 1920, Serial No. 349,369. Renewed December 11, 1920. Serial No. 430,042.

To all whom it may concern:

Be it known that I, BARNETT WRIGHT MACY, a citizen of the United States, and a resident of Jacksonville, in the county of Duval and State of Florida, have invented certain new and useful Improvements in Electric Liquid-Heaters, of which the following is a specification.

My invention is an improvement in electric liquid heater, and the invention has for its object to provide mechanism of the character specified capable of heating the liquid quickly to a very high degree wherein a heating coil is provided embedded in an agent capable of being heated to a high degree in a short time by the current through the coil.

In the drawings:

Figure 1 is a front view of a heater constructed in accordance with the invention,

Fig. 2 is a vertical section,

Fig. 3 is a transverse section,

Fig. 4 is a front view showing a modified arrangement,

Fig. 5 is a horizontal section through Fig. 4.

In the embodiment of the invention shown in Figs. 1 to 3, the improved heater comprises a pipe 1, preferably of copper through which the liquid to be heated flows, the liquid entering at the lower end of the pipe and leaving at the upper end, and the ends of the pipe have suitable connections for connection with a liquid supply and for delivering the liquid in a controlled stream.

A shell 2 of insulating material is arranged on the pipe, and this shell supports a winding 3 of resistance wire. The winding extends from near one end of the shell to near the other, and at each end of the shell there is arranged on the pipe a disk 4 of insulating material. The upper disk 4 is held between the end of the shell 2 and a stop 5 rigid with the pipe, while the stop 4 is held between the lower end of the shell and a nut 6 threaded on to the pipe.

The disks are peripherally rabbeted as indicated at 7 at their inner faces, and a cylindrical shell or casing 8 has its ends engaging these rabbets. Both the shell 3 and the disks 4 are inclosed by a holding shell 9 of suitable material, and the chamber formed within the shell 3 between the disks or heads 4 is filled with a material indicated at 10 which is capable of being heated to a point of incandescence.

The upper terminal 11 of the winding extends outwardly through the "material 10" and thence downwardly to a connection with a binding post 12 held in the lower head 4. The lower terminal 13 of the winding is connected with a similar post 14 in the head, at the opposite side from the post 12, and these posts are adapted for connection with an electrical circuit, for supplying current to the winding.

When the current is passed through the coil, the "material 10" becomes incandescent thus heating to a high degree the copper pipe through which the liquid flows. The cold liquid entering at the lower end of the pipe will be heated during its passage.

If desired the improved heater may be arranged in multiples of the units shown in Fig. 2. In Figs. 4 and 5 there is shown such a multiple construction. In this arrangement a species of hollow grid is provided consisting of parallel pipes 15 which are connected at their ends by cross pipes 16. All of the pipes 15 communicate at each end with the pipes 16, and each pipe 16 has at its center an outwardly extending nipple 17 and 18 respectively, the former for connection with a cold liquid supply, and the latter for connection with suitable discharge mechanism. Each pipe 15 is provided with a jacket 2 of insulating material, carrying a heating coil, and the series of pipe 15—16 are inclosed in a suitable casing containing the "material 10." The heating coils may be arranged in series in the circuit, and the operation will be the same as in the construction of Fig. 2. However the liquid is divided into smaller columns, more easily heated.

I claim:

A heater of the character specified comprising a pipe for the passage of liquid, an insulating shell on the pipe and carrying a winding of resistance wire, a casing of insulating material inclosing the shell and winding, said casing consisting of disks having openings for receiving the pipe and abutting the ends of the shell, and a cylindrical body, the disks having the inner ends rabbeted to receive the body, and a holding shell extending over the body and the disks to the ends thereof, said pipe having a fixed stop at one end of the casing and a removable stop at the other for holding the disks in place against the ends of the shell.

BARNETT WRIGHT MACY.