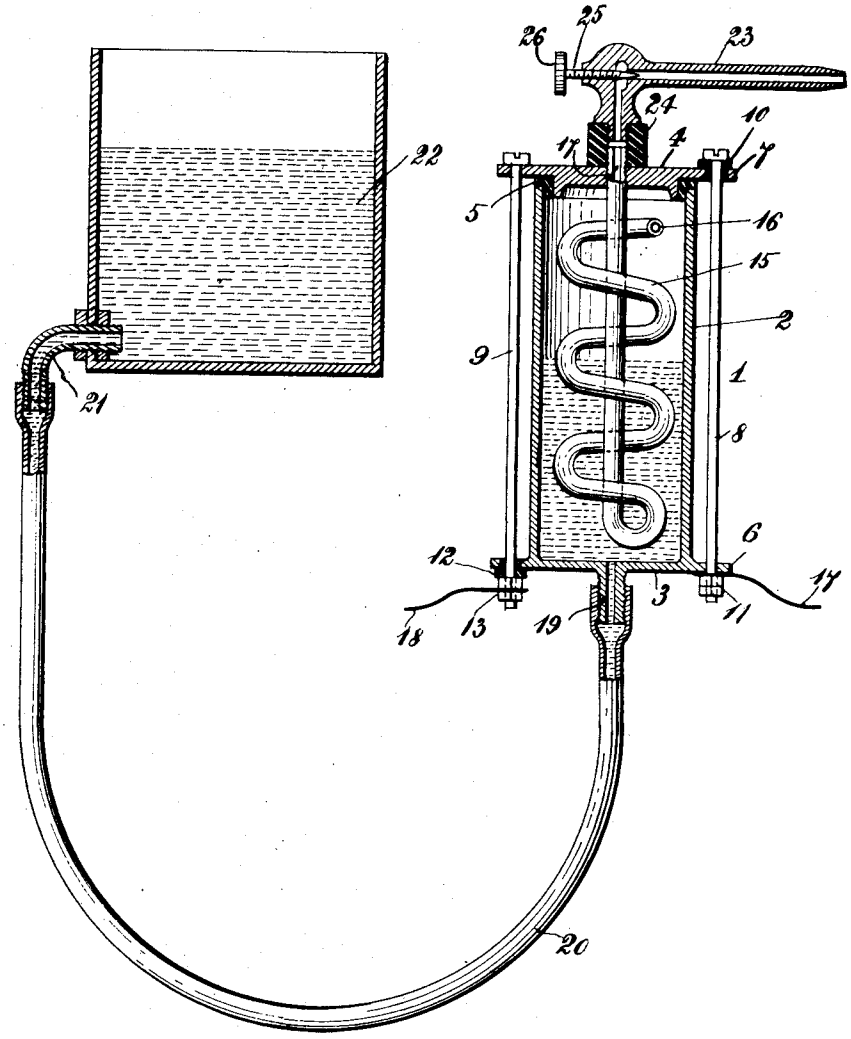
Aug. 6, 1929. J. S. LANG 1,723,738

ELECTRIC STEAM GENERATOR

Filed June 17, 1927



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Patented Aug. 6, 1929. 1,723,738

UNITED STATES PATENT OFFICE.

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ELECTRIC STEAM GENERATOR

Application filed June 17, 1927. Serial No. 199,499.

The invention relates to an improvement in steam generators of the electrode type wherein steam is generated by the passage of electric current between submerged electrodes.

The essential object of the invention is to provide means whereby a highly heated or even superheated, practically dry steam may be obtained in the operation of the generator.

The invention may best be seen and understood by reference to the drawing in which an embodiment thereof is shown in vertical section.

Referring to the drawings:

1 represents the body of the generator. This comprises a container for holding water with separate electrodes to which electric current is supplied, and which electrodes are so arranged that the contained water will lie between them and be heated for conversion into steam by the passage of the electric current through the water whatever the amount of water within the container may be.

2 represents the side wall of the container generally cylindrical in form. 3 is the bottom of the container integral with its side wall 2. The parts 2 and 3 are of metal suitable for the conducting of an electric current.

4 is the cover of the container closing the top end of the body thereof and is insulated therefrom by an insulating ring 5.

The cover 4 together with the insulated ring 5 is arranged to make tight connection with the top end of the body of the container and to this end both the bottom 3 and cover 4 are flanged, the bottom 3 being provided with an outwardly extending flange 6 and the cover 4 with a flange 7 likewise extending. The cover 4 is retained by screws 8, 9, respectively, which extend through the respective flanges of the bottom and cover. Of these screws the screw 8 extends through an insulated bushing or plug 10 in the flange 7 of the cover and accordingly is insulated therefrom, the head of the screw drawing against this bushing. The shank of the screw 8 extends downward and passes through the flange 6 of the bottom 3, and the end of the screw is secured by a set of tightening nuts 11 in direct contact with the flange 6 of the bottom 3. The screw 9, arranged on the opposite side of the container from the screw 8, passes downward through the flange 7 of the cover, the head of the screw being in direct contact therewith. The shank of the screw 9 projects downward through an insulated bushing or plug 12 in the flange 6 of the bottom 3 by which the screw is insulated from the bottom 3. The end of the screw 28, projecting below the insulated plug 12, is secured by a set of binding nuts 13 on the end of the screw with bearing against the insulated bushing or plug 12. When the respective sets of nuts 11, 13, are tightened on the ends of the respective screws the cover 4 and insulated ring 5 will be drawn to make tight engagement with the top end of the body of the container.

Connecting with the cover 4 of the container with projection through it and extension downward through the chamber of the container is a hollow metal tube 15. The tube extends through the chamber of the container preferably to a point close to its bottom where the tube is bent to wind back upon itself with the inner open end 16 of the tube lying in the top of the chamber of the container. The outer end 17 of the tube, extending through the cover 3, has threaded connection with it to form a tight joint.

With the parts of the container thus arranged, the side wall 2 of the container and its bottom 3 will form one of the electrodes of the generator. Current is directed to this electrode by way of a wire 17 forming part of an electric circuit and this wire is bound to the flanged bottom 3 of the container by the binding nuts 11 which secure the screw 8. On the other hand, the cover 4 of the container and tube 15 form the other electrode. An electric circuit wire 18 connects with this electrode and this wire is bound to the bottom end of the screw 9 by binding the wire between the nuts 13 which secure the bottom end of this screw.

With the parts thus arranged, not only is there provided a container for receiving and holding water, but water within the container, whatever its amount or level may be, will lie between the two electrodes or between the side 2 of the container and the tube 15.

The water container has an outlet opening

19 at its bottom through which water is supplied to the container. Water is directed into the container by way of a pipe 20 the outer end of which connects with the inlet 19 to the container, while the inner end of the pipe connects with an outlet 21 from a water tank 22. This tank is arranged in an elevated position above the level of the container so that water from the tank will normally fill the chamber of the container, the water therein being maintained under some pressure.

The tube 15 provides the outlet from the water container for the escape of steam. Connecting with the outer end 16 of the tube, extending above the cover of the container, is a nozzle 23. This is secured to the outer end of the tube and insulated from the cover of the container by a coupling 24 of insulating material. The opening or passage through the nozzle is controlled by a screw valve 25 having a head 26 for turning it.

The general operation of the generator is that of its type, steam escaping from the water container by way of the tube or outlet pipe 15. This tube forming as it does a part of one of the electrodes becomes a very highly heated tube in the operation of the device. All the steam formed within the generator to escape through the outlet nozzle must pass through this tube inasmuch as the only entry is by way of the open end 16 of the tube. Consequently steam passing through the tube will become very highly heated or even superheated and will issue as practically dry steam, all of which is of special advantage in certain connections in which the device may be used.

It is of course obvious that other means may be employed for practising the present invention apart from the apparatus shown which is in so far as I am aware the simplest that may be employed for practising the invention.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States:—

1. A steam generator of the electrode type wherein steam is generated by the passage of electric current between submerged electrodes, one of the submerged electrodes having a passage through it communicating at its inlet with the steam chamber of the generator and at its outlet with the outlet for steam from the steam generator.

2. A steam generator of the electrode type wherein steam is generated by the passage of electric current between submerged electrodes, one of the submerged electrodes having a passage through it communicating at its inlet with the steam chamber of the generator whereby steam therein will enter to pass through said one of the electrodes and be subjected to a high drying influence in its passage through the submerged portion of the electrode, the passage through said one of the electrodes communicating at its outlet with the outlet from the steam generator.

JAMES S. LANG.