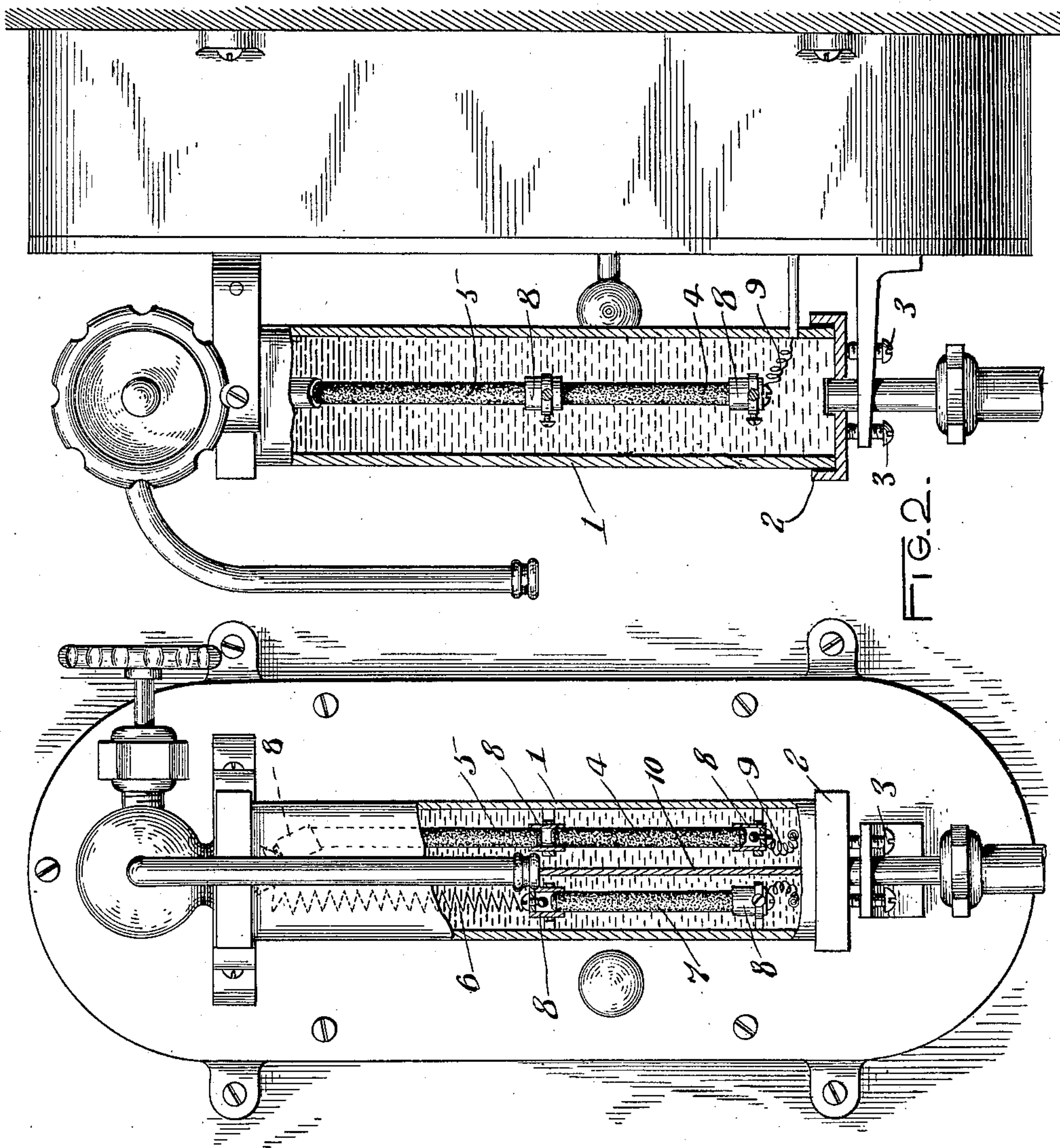


No. 897,186.

PATENTED AUG. 25, 1908.

J. R. AYOTTE.  
ELECTRIC WATER HEATER.  
APPLICATION FILED OCT. 2, 1907.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOSEPH RÉNÉ AYOTTE, OF MONTREAL, QUEBEC, CANADA, ASSIGNOR TO JEAN BAPTISTE ALBERT MARTIN, OF MONTREAL, CANADA.

## ELECTRIC WATER-HEATER.

No. 897,186.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed October 2, 1907. Serial No. 395,527.

*To all whom it may concern:*

Be it known that I, JOSEPH RÉNÉ AYOTTE, a subject of the King of Great Britain, residing at the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Electric Water-Heaters; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to electric water heaters of the general type of heaters disclosed in a prior copending application of my own, Serial No. 390,081, and is designed as an improvement on the heater therein shown.

One of the main objects of the present invention is to provide a heating element so constructed and arranged as to raise the temperature of the water to the desired degree in the shortest possible time.

The present improvement is also constructed with the idea of facilitating the easy and rapid assembling and separation of the several parts and to provide perfect insulation of the parts from the current of the heating elements.

In order to enable any one skilled in the art to which this invention applies to more readily understand its construction, operation and the use of the same, reference should be had to the accompanying drawings forming part of the present application in which drawings similar reference characters designate like parts throughout the several views.

In the drawings:—Figure 1 is a plan view with the front of the heater partly broken away to show the arrangement of the heating elements; and, Fig. 2 is a side elevation with the casing partly broken away.

Referring to the drawings in detail, a water receptacle comprising a tubular body 1 and removable end caps 2 is supported on or adjacent a rheostat of any well known form. One or both of these brackets is provided with adjusting screws 3 adapted to take against the outer surface of the cap 2 and to force it tightly against the end of the tube 1 to make a perfectly water tight joint.

The interior of the caps and the interior of the tubular body are both covered with an insulating material. Preferably this material is both a non-conductor of heat and of

electricity in order to retain all the heat within the tubular body and to prevent the tubular body becoming charged from the heating current. The heating elements in the present instance comprise carbon rods 4 and 5, German silver wire in coil form 6 and a carbon rod 7. The ends of rod 4 are mounted in fluid tight mica insulating boxes or supports 8 in such manner as to leave a spark gap between its lower end and the end of the conductor 9 and a similar gap between its upper end and the lower end of carbon rod 5, which is also supported in a similar manner. The upper ends of carbon rod 5 and the German silver wire 6 are similarly supported, as also are the lower end of the German silver wire and the upper end of the carbon rod 7. The lower end of the carbon rod 7 is supported in the same manner as that of rod 4. The inner faces of the caps 2 are packed with asbestos fiber or similar insulating material, as indicated at 9 and a sheet of like material is attached to or laid securely over the entire inner face of tube 1.

In order to prevent short circuiting a partition of insulating material 10 runs longitudinally of the tube 1 between the heating elements and, of course, extends the entire width of the tube.

In order to make a perfectly tight joint between the ends of the tube 1 and the inner faces of the caps 3, rubber washers or similar packing may be used.

A suitable inlet and outlet for the water are provided in any well known and usual way.

The operation of the device is as follows:—Water is admitted to the tubular body 1 and the switch of the rheostat is moved to send a current through the conductor 9, through the ordinary resistance or heating elements and out through the conductor 9 at the opposite side. As the current jumps from the conductor 9 to carbon 4 and similarly from each succeeding heating element to the next succeeding one, the parts of the elements receiving and emitting the sparks are subjected to a high tension and consequently raised to a very high degree of heat, as is well known. The German silver wire, being of high resistance, becomes highly heated throughout its entire extent. The electric current heating the elements, as it does, practically instantaneously, raises the



temperature of the water in the tubular body 1 to the desired point in the shortest possible time.

The heating elements disclosed in the present application are comparatively cheap commercial articles and are such as may be readily raised to a very high degree of temperature by a comparatively weak current of electricity.

Many changes may be made in the construction, and arrangement of the minor parts of the invention without in any way departing from the field and scope of the present invention and it is meant to include all such in this application wherein only one preferred form is illustrated.

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

1. An electric water heater comprising a casing, a plurality of heating elements within said casing adapted to be connected to electric conductors, and spaced apart to present sparking gaps between the successive elements whereby those parts of the elements adjacent the sparking gaps are raised to a high temperature to heat the

water and fluid tight mica boxes inclosing said spark gaps and supporting the adjacent ends of said elements.

2. An electric water heater comprising a casing, a plurality of heating elements within said casing adapted to be connected to electric conductors and spaced apart to present sparking gaps between the successive elements, said elements including a German silver wire adapted to be heated to a high degree by the electric current to heat the water in the casing and fluid tight mica boxes inclosing said spark gaps and supporting the adjacent ends of said elements.

3. An electric water heater comprising a casing, a plurality of heating elements within said casing and adapted to be connected to electric conductors, and an insulating partition extending longitudinally of the casing and separating said heating elements.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOSEPH RENÉ AYOTTE.

Witnesses:

ERNEST BÉLANPE,  
T. MYNARD.