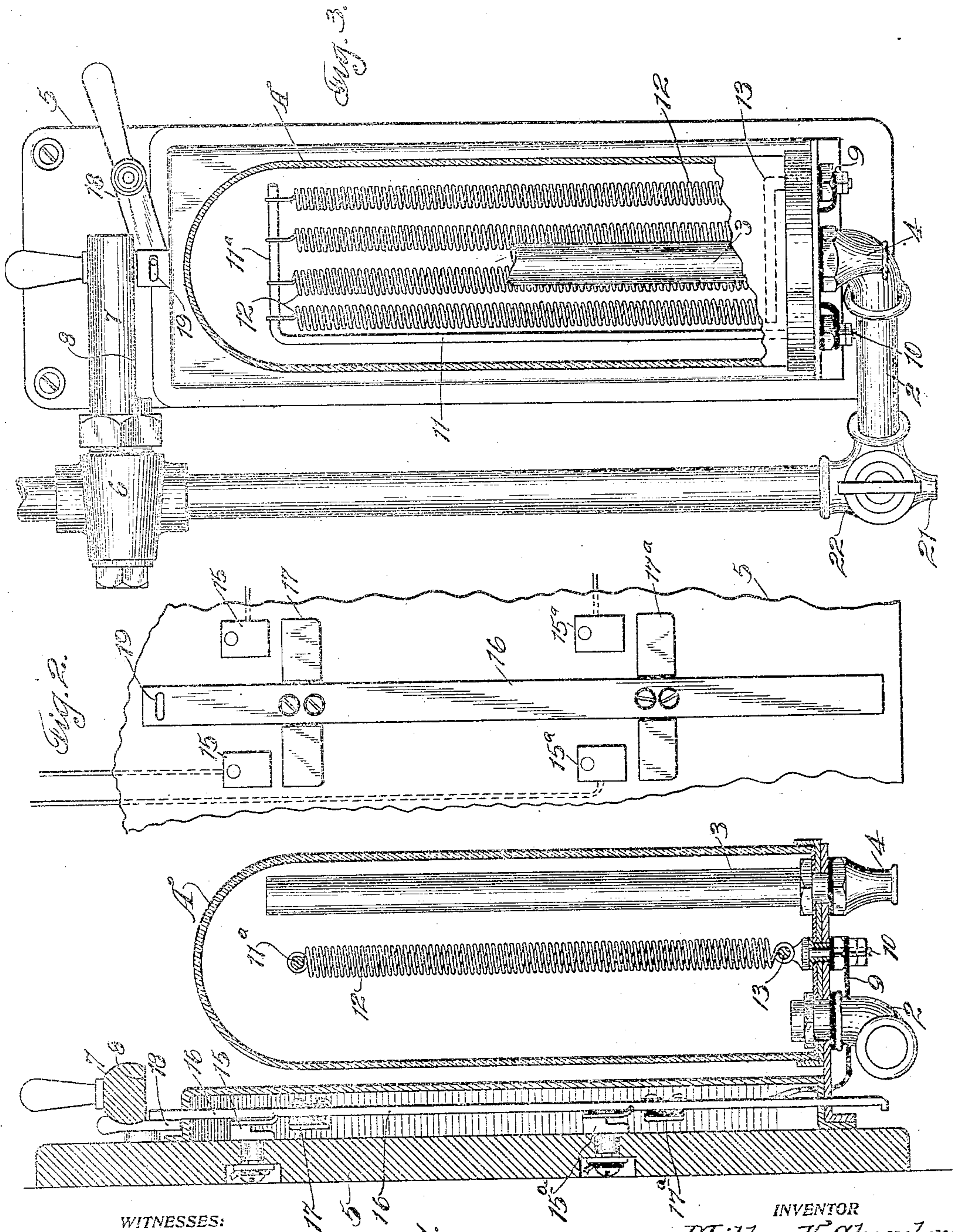


No. 879,498.

PATENTED FEB. 18, 1908.

M. H. SHOENBERG.  
ELECTRICAL WATER HEATER.  
APPLICATION FILED JUNE 5, 1907.



WITNESSES:

*A. C. Hayward*  
*G. H. Power*

*Fig. 1.*

INVENTOR  
*Milton H. Shoenberg*

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# UNITED STATES PATENT OFFICE.

MILTON H. SHOENBERG, OF SAN FRANCISCO, CALIFORNIA.

## ELECTRICAL WATER-HEATER.

No. 879,498.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed June 5, 1907. Serial No. 377,322.

*To all whom it may concern:*

Be it known that I, MILTON H. SHOENBERG, citizen of United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Electrical Water-Heaters, of which the following is a specification.

My invention relates to an apparatus for electrically heating water, and in a means for controlling the passage of the electrical current in unison with the opening and closing of the water supply.

It consists in combination and mechanism, and details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section of my apparatus. Fig. 2 is a sectional elevation of the switch mechanism. Fig. 3 is a vertical section of the apparatus taken at right angles with Fig. 1.

It is the object of my invention to provide a device for heating water by the passage of an electric current through the body of water to be heated, and in a mechanism whereby the electric current is prevented from flowing through the heating means at all times when water is not also flowing; the operation of one control being coincident with that of the other.

My apparatus consists of a water-containing chamber A having an inlet pipe 2 by which water is delivered into the lower part of the chamber to rise therein, and an outlet pipe 3 having its receiving end in the upper part of the chamber so as to receive the hottest of the water, and a discharge nozzle 4 at the bottom through which the water may be delivered. The apparatus is preferably mounted upon an insulating slab or support as at 5, but any convenient support may be employed with the suitable insulations.

The water supply is controlled by a cock at 6 having an extension or shaft 7, which is cut away or flattened on one side as at 8, so that when this flattened side is turned to stand in a vertical position, the water-cock will be opened and when turned to stand horizontally, it will be closed.

The electrical current may enter the apparatus through a connection as shown at 9, and passing into the interior of the apparatus the wires connect with a conductor as at 10, within the water-heating chamber, and through a vertical standard as at 11, the cur-

rent passes to a cross-bar 11<sup>a</sup> which may be formed by bending the standard 11 at right angles, or forming it in a circle, or other suitable or desired shape for the attachment of wire coils 12. These coils are of naked wire having such interspaces between their windings as to prevent any short-circuiting of an electrical current, this electrical current passing around the whole length of the coils, which coils are connected at the lower end with a conductor as at 13, through which and connected wires the circuit is completed to the switch. A sufficient number of these coils are contained within the water-chamber, preferably parallel with each other, and extending from top to bottom to rapidly heat the water which enters the chamber as before described through the pipe 2, and is discharged through the outlet pipe 4.

The switch connections are represented by the contact plates 15 and 15<sup>a</sup> with each of which one of the conducting wires is connected.

16 is a bar or equivalent slidable part which is here shown carrying cross-bars 17 and 17<sup>a</sup> in such relation with the contact plates 15 and 15<sup>a</sup> that when the slide 16 is raised or otherwise moved with relation to the contacts 15—15<sup>a</sup>, the bars 17—17<sup>a</sup> will be brought into contact with the plates 15—15<sup>a</sup> and thus establish the circuit. When they are moved away from these plates, the circuit is interrupted. This movement is interrupted by means of a fulcrumed lever 18 which is suitably connected with the slide 16. In the present case I have shown the connection as made by a pin upon the end of a lever 18 entering a slot 19 in the slide 16, which slot has sufficient length to allow the pin to move in the necessary curve to properly move the slide 16. In order to prevent this contact being completed when the water is not on, the lever 18 is fulcrumed in such position with relation to the stem of the water-cock that when the cock is closed the full diameter is interposed so that the lever 18 will contact with one side of the stem if any attempt is made to energize the heating coils, and such attempt will be frustrated. When however the water-cock has been opened, the stem 7 will have been turned so that the flattened side will be in vertical plane, and in the line of travel of the lever 18, and will thus leave sufficient space for the movement of this lever. This construction allows water to be turned on and



drawn off cold, through the apparatus, if desired, as it is not necessary to energize the coils unless desired. If however it is desired to heat the water, after the water-cock has been opened, the electrical switch is moved to energize the coils and the water will then be heated.

In case it is desired to draw off the water from the heating chamber at any time, it may be done through a discharge pipe or passage at 21, which may be either independent or connected with the inlet pipe 2 by means of a T-coupling as at 22, and a suitable valve or cock by which the discharge passage may be opened when the cock 6 has been closed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. An electrical water-heater consisting of a water-receiver having inlet and discharge passages, a series of naked electrical coils out of contact, extending through the chamber, a standard extending in the direction of the length of the water receiver, contacts with which the opposite ends of the coils are connected, one of said contacts being fixedly connected to the standard and extending transverse of the latter a slidable switch adapted to make or break the circuit by contact with or separation from said plates, a lever by which the device is actuated, a water-supply cock having a cylindrical stem extending into the plane of movement of the switch lever, said lever operating in a plane substantially parallel with the axis of the stem and said stem being cut away on one side to allow the switch lever to move when the water-cock is opened, and to prevent it from moving when said cock is closed.

2. In a water and like heating apparatus, a receiver with supply and discharge means, and internally disposed heating coils, means by which an electrical current may be passed through the coils, said means including a standard within and parallel with the re-

ceiver, and cross bars within said receiver and to which the opposite ends of the coils are connected, one of said cross-bars being fixed to the standard a current controlling switch, and a water supply faucet, said faucet being so disposed as to prevent the closing of the circuit while the faucet is closed.

3. In an electrical water-heater, the combination of a water receptacle having inlet and outlet passages, a heating coil in said receptacle, electrical connections with opposite ends of said heating coil, connections comprising a standard extending longitudinally of the receptacle and having its upper end bent transversely, said end and a corresponding part in the opposite end of the receptacle forming contacts to which the opposite ends of the coil are connected a cock controlling the inlet of water to the receptacle, a switch in said electrical connections, said cock having a movable part co-acting with the switch to prevent the closing of the electrical circuit when the cock is closed, and said part operable independent of the switch to permit hot or cold water to be drawn.

4. In an electrical water-heater, the combination of a water receptacle having inlet and outlet passages, a heating coil in said receptacle, electrical connections with opposite ends of said heating coil, a cock controlling the inlet of water to the receptacle, a switch in said electrical connections, said cock having a turnable stem with a flattened portion, said flattened portion turnable into planes at right angles to each other, and said flattened portion forming a stop to the movement of the switch when the cock is closed, but permitting the operation of the switch when the cock is open.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MILTON H. SHOENBERG.

Witnesses:

EUGENE W. LEVY,  
F. H. MERZBACH.