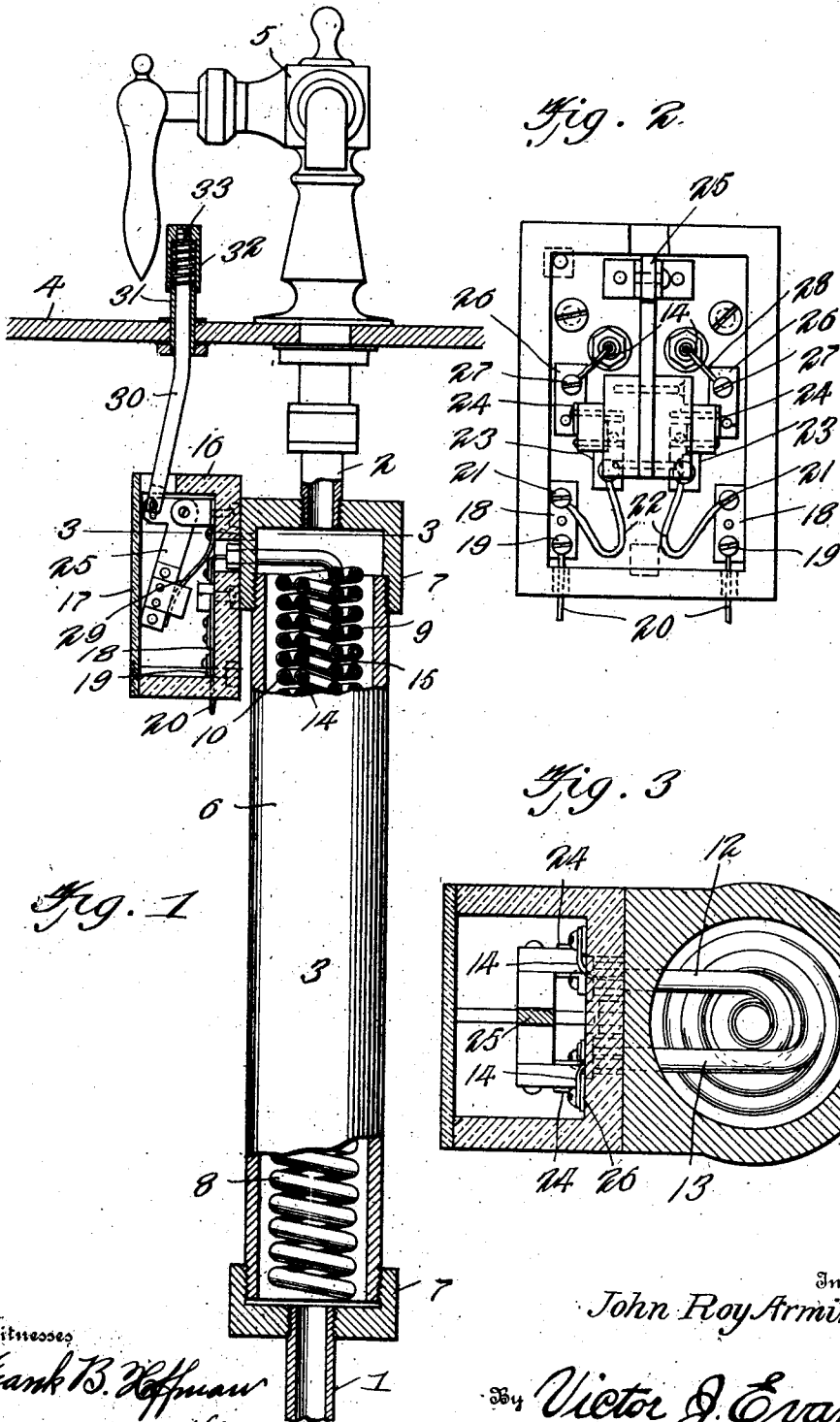


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WATER HEATER.
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Patented June 21, 1910.



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WATER-HEATER.

962,294.

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To all whom it may concern:

Be it known that I, JOHN ROY ARMINGTON, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented new and useful Improvements in Water-Heaters, of which the following is a specification.

This invention relates to an electric water heater designed especially for use in connection with water service or supply pipes having a discharge faucet, the object of the invention being to provide a heater for use in connection with a lavatory, bath or sink supply pipe arranged in the pipe adjacent the faucet and which may be thrown into operation for furnishing water of any desired temperature up to the boiling point for direct discharge from the faucet.

A further object of the invention is to provide a simple and efficient construction of water heater which may be arranged in the supply pipe below the top or slab of the bowl and thrown into and out of operation at will by the use of a switch having an operating device movable through the slab, whereby the apparatus may be rendered operative at any time for the supply of hot water.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a sectional elevation showing the application of my invention. Fig. 2 is a front view of the switch box with the cover removed. Fig. 3 is a horizontal transverse section through the heater on the plane indicated by the line 3—3 of Fig. 1.

Referring to the drawing, 1 and 2 designate sections of a water supply pipe, between which my improved electrical heater 3 is interposed, the upper section 2 being illustrated as extending through the top or slab 4 of a lavatory or other similar bowl or receptacle and is provided with a water discharge faucet 5.

The heater 3 consists of a tubular casing 6 exteriorly threaded at its upper and lower ends to receive closure caps 7, which caps have internally threaded openings to receive the threaded ends of the pipe sections 1 and 2, by which the tube or casing is closed and coupled between the sections of the water supply pipe.

Within the casing is arranged a heating

element 8, which extends the full length thereof, and is preferably formed of an outer section 9 and an inner section 10, integral at their lower ends with each other. In practice the two sections are preferably formed from a single tube of copper or like conducting material bent into the described shape, the ends 11 and 12 of each tube, which constitute the terminals of the upper ends of the coil sections, being extended upwardly into the upper cap 7 and outwardly through one side thereof, as hereinafter described. Within the copper tube is a resistance wire 14 between which and the wall of the tube is arranged a suitable body of non-combustible insulating material 15, the construction being such that a current supply to the wire 14 will, through the generated resistance, produce heat by which the coil itself will be heated to a high temperature and the heat radiated therefrom within the casing 6.

Secured to one side of the upper cap or coupling 7 is a switch box or casing 16 preferably made of porcelain or other suitable material and having an open front adapted to be closed by a cover plate 17. Secured to the rear wall of this box are conducting plates 18 having a lower set of binding screws 19 to which electrical feed wires 20 leading from any suitable source of supply are connected. The plates 18 are also provided with binding screws 21 to which are attached fuse wires 22, which connect the same with switch contacts 23, which are adapted to be electrically connected with other switch contacts 24 by the knives of a pivoted knife switch 25. The contacts 24 are connected with conducting plates 26 having binding screws 27 to which the terminals 28 of the resistance wire 14 are connected, so that when the switch is thrown the resistance wire 14 will be connected with the feed wires, as will be readily understood. The terminals 28 extend from the ends 12 and 13 of the coil sections 9 and 10 through the upper cap 7 into the switch box, as shown.

The switch 25 is of bell crank form and is normally held retracted by a spring 29 which is also designed to give a quick break. The upper arm of this switch has a slip-joint connection with the lower end of a vertically movable rod or plunger 30 which passes upwardly above the top of the bowl through a guide tube 31 carried by and ex-

tending through the slab 4. The upper end of the rod is threaded to receive a cap 32 which slidably engages said tube 31 and contains a coil spring 33 bearing terminally against the tube and cap, by which the cap is normally held upwardly or retracted and the rod 30 drawn up to hold the switch 25 in open or cut off position. It will be understood that the cap 32 forms a finger piece by which the rod 30 may be depressed to throw the switch into engagement with the contacts, whereby current will be supplied to the resistance coil, heating the same to a high degree so that the water passing through the casing 6 to the faucet 5 will be heated.

It will be seen from the foregoing description that my invention provides a compact form of electrical heater which may be conveniently applied to the water supply pipe in juxtaposition to the faucet and thrown into operation to heat the water flowing to the faucet. When the switch is open the water will feed to the faucet in the usual way as will be readily understood, but by simply closing the switch the coil may be heated to heat the water passing there-through. The degree of temperature to which the water is heated will depend, of course, on its rapidity of flow through the faucet and by proper control the water may be furnished at any desired temperature up to the boiling point.

Having thus described the invention what is claimed as new is:—

1. An electric heater comprising a tubular casing, caps at the ends of the casing, a heating element within the casing including a resistance wire having its terminals extending exteriorly through one of said caps, a switch box carried by said cap and provided with contacts connected with said terminals, a switch within said box to engage said contacts, and means for operating the switch.

2. In a water heater, the combination with a support, of a faucet mounted thereon, a water supply pipe arranged below the support and communicating with said faucet, a casing in said pipe, a heating medium within the casing including a double coil having its elements arranged one within the other and a resistance wire insulated from said coil and having its terminals extending to the exterior through the casing, a switch mounted upon the exterior of the casing to engage said terminals, means for normally holding the switch retracted, and a spring retracted switch closing device connected with the switch and extending through said supporting member adjacent the faucet.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. ARMINGTON.

Witnesses:

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E. R. FINGER.