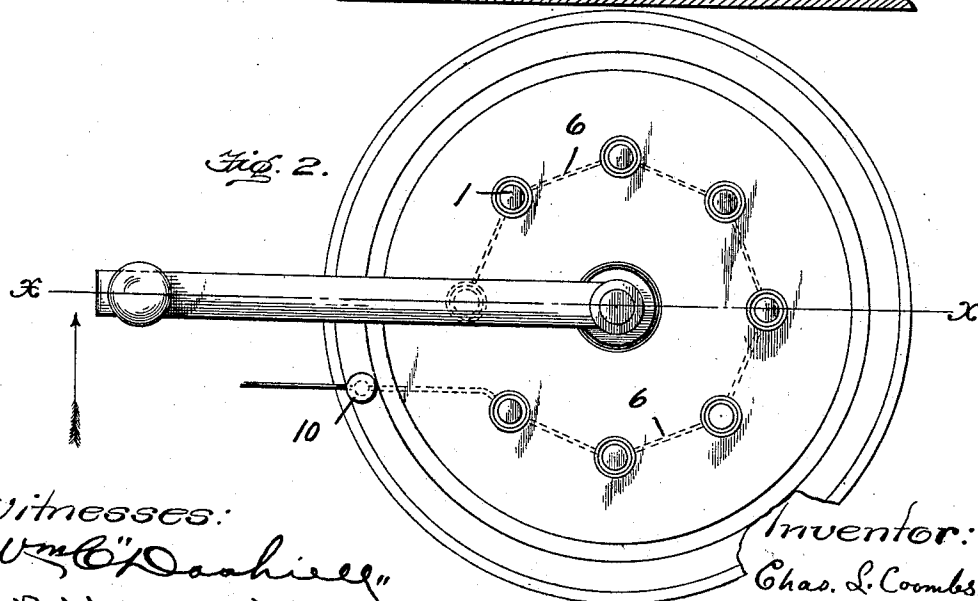
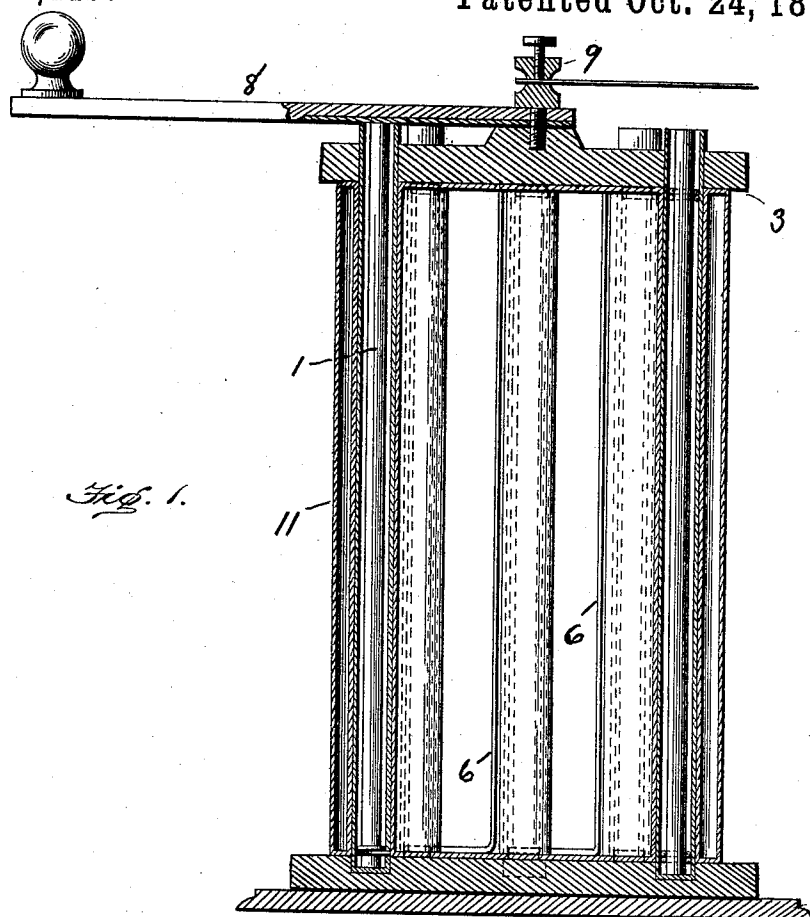


(No Model.)

C. L. COOMBS.
ELECTRIC HEATER.

No. 507,217.

Patented Oct. 24, 1893.



Witnesses:

Wm. C. Daahill
A. B. Hayward

Inventor:
Chas. L. Coombs.

UNITED STATES PATENT OFFICE.

CHARLES L. COOMBS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
OF TWO-THIRDS TO EDWARD RENAUD AND ALLEN B. HAYWARD, OF
SAME PLACE.

ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 507,217, dated October 24, 1893.

Application filed February 11, 1893. Serial No. 461,997. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. COOMBS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Electric Heaters; and I do hereby declare the following to be 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.

This invention relates to certain improvements in electric heaters, and it has for its objects, to provide a device that can be cheaply constructed and which can be put in and out of use quickly, and which will be unattended with danger when in use. These objects are attained by the means illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of my improved device; Fig. 2, a top plan elevation thereof.

My invention consists essentially, of a heater composed of a series of resistances, completely insulated by a coating or inclosing body of vitreous or other suitable insulating material, except at the upper ends, the said resistances being confined by two heads, through the upper one of which, the exposed ends of the resistances project, the said resistances being connected electrically in series, and the apparatus being provided with a switch by which one or more may be thrown in circuit, as more fully hereinafter explained.

Referring to the drawings, on which like reference numerals indicate like parts, in the respective figures, the numeral 1 indicates the resistances which are preferably made of cylindrical carbon rods. The outer surfaces of the said rods are covered with some insulating enamel, as shown at 2 in Fig. 2.

The numerals 3 and 4 indicate two heads which are to be constructed of suitable material, preferably of an insulating material, such as porcelain, for instance. The lower ends of the rods are seated in sockets 5, arranged in a circle around the lower head of the heater, and the upper exposed ends pass through similarly arranged openings in the upper head projecting slightly above said head. The resistances are connected in series, except the first and last, by means of

conductors 6, and at the top of the upper head is located a switch 8, which is constructed of insulating material and provided with a metallic contact-plate on its lower face adapted to make contact with the exposed ends of either of the resistances. The bearing plate is in electrical connection with a binding post 9, at the center upon which the switch turns, and the last of the series of resistances is in electrical connection with a similar binding post 10, by means of which the heater may be placed in an electric circuit.

The heater as thus constructed is ready for operation, but in some instances it is necessary to store the heat and radiate it slowly. In such cases, I locate a tubular boiler 11, between the heads and pass the resistances through the tubes, being careful to have them thoroughly insulated from said tubes.

The heater is applicable to all purposes where heat is required, but is principally designed as a car heater or hot-water heater for restaurants and other like places, as the boiler can be made of highly polished metal and will form a handsome counter or side-ornament, besides being capable of being quickly thrown into and out of action; and any desired amount of heat may be obtained by turning the switch from left to right, in order to bring one or more resistances in circuit.

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

1. In an electric heater, the combination with the resistances, consisting of insulated carbons, located between suitable heads, and connected in series, as shown, and a switch lever pivoted centrally between the exposed ends of the resistances and connections, whereby one or more of said resistances may be brought into an electric circuit substantially as specified.

2. In an electric heater, the combination of one or more resistances confined between suitable heads and electrically connected in series as described, of a tubular boiler located between said heads and so arranged that the resistances may pass through the flues thereof, and suitable connections whereby the resistances may be placed in an electric circuit

and a centrally pivoted switch to make connection successively with the exposed ends of the resistances, substantially as specified.

5 3. A resistance for an electric heater consisting of a rod or bar of carbon covered with an insulating casing, except at one end, which is adapted to make contact with a centrally located switch, the carbons or resistances being constructed with intermediate connec-

tions whereby they may be placed in series in an electric circuit substantially as specified.

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

CHARLES L. COOMBS.

Witnesses:

J. S. TOMLINSON,

JAS. A. LARCOMBE.