W. A. RANKIN & H. D. LARAWAY.

RADIANT TYPE STOVE.

APPLICATION FILED FEB. 2, 1916.

1,231,196. Patented June 26, 1917.

Fig. 1.

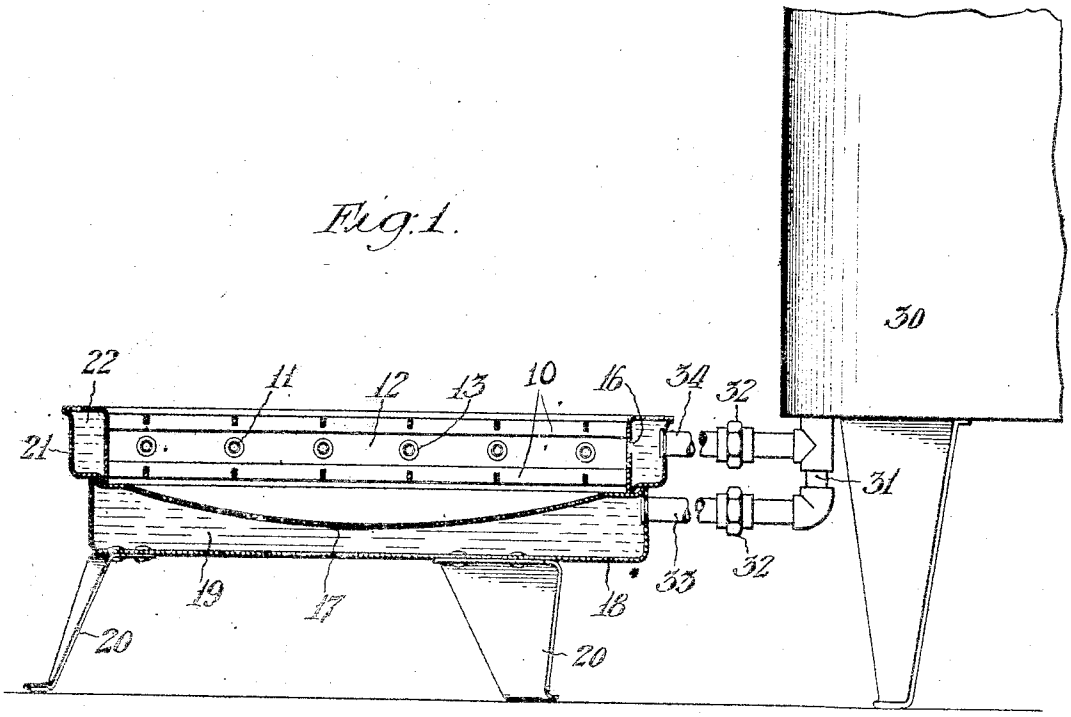
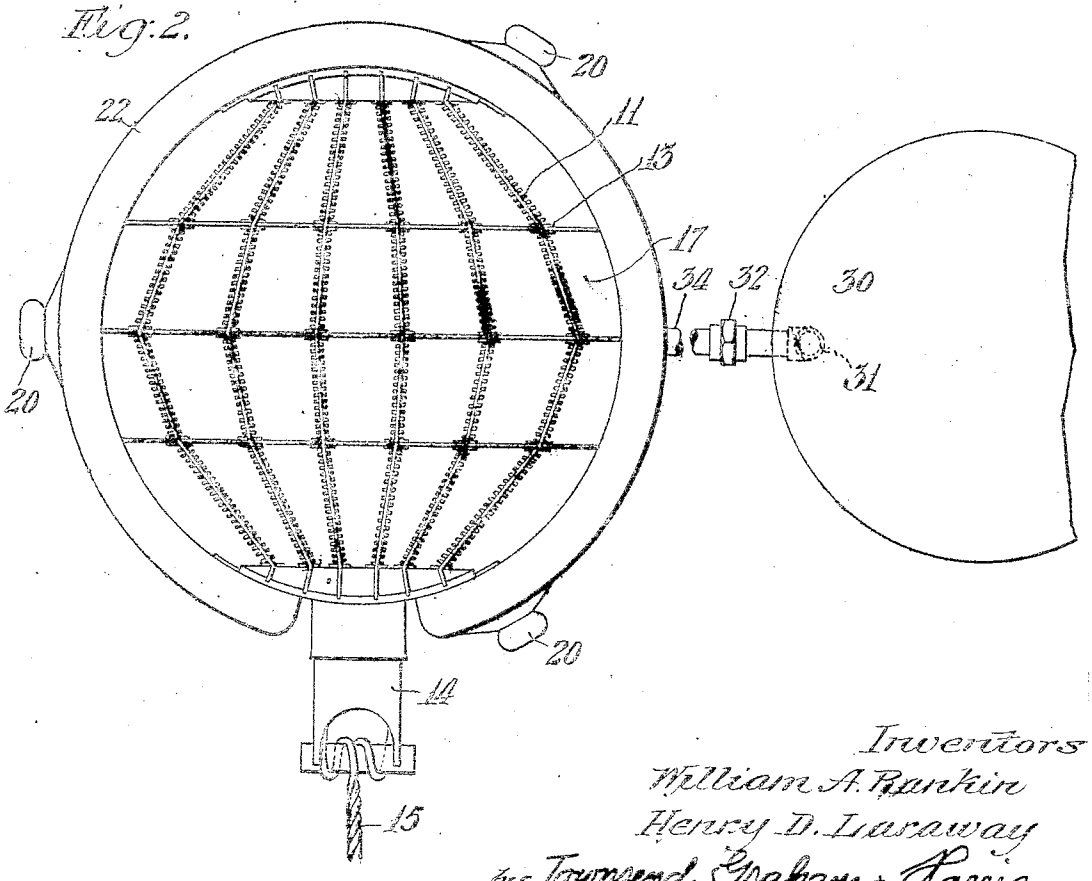


Fig. 2.



Inventors
William A. Rankin
Henry D. Laraway
by Townsend Graham & Harris
their Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM A. RANKIN AND HENRY D. LARAWAY, OF ONTARIO, CALIFORNIA, ASSIGNORS TO HOTPOINT ELECTRIC HEATING COMPANY, OF ONTARIO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

RADIANT-TYPE STOVE.

1,231,196. Specification of Letters Patent. Patented June 26, 1917.

Application filed February 2, 1916. Serial No. 75,851.

To all whom it may concern:

Be it known that we, WILLIAM A. RANKIN and HENRY D. LARAWAY, both citizen of the United States, residing at Ontario, in the county of San Bernardino and State of California, have invented a new and useful Improvement in Radiant-Type Stoves, of which the following is a specification.

Our invention relates to electrically heated appliances, and the principal object of the invention is to provide an improvement in radiant type stoves, such stoves as ordinarily constructed consisting of a frame in which is secured a heating element formed of open wire coils, this heating element being heated by means of electric current, the utensil to be heated being placed directly above the heating element.

For the purpose of increasing the efficiency of such stoves, it is common practice to provide a polished reflector which is located near the heating element, this reflector tending to reflect the radiant energy of the heating element directly against the utensil to be heated.

In electric stoves of the radiant or glowing coil type, the efficiency is greatly increased by the reflector, and by placing the reflector as closely as possible to the heating coil. If the ordinary type of reflector is placed too close to the glowing coil, it soon loses its efficiency as a reflector, due to its becoming oxidized, and dulled, both by the heat of the coil and by hot substances which may be dropped thereon. When substances are so dropped they soon become burned and baked into the surface so that a new reflector has to be supplied if the efficiency is to be maintained. In a similar manner, the case which surrounds the heater soon becomes discolored, which greatly detracts from the appearance of the stove.

The principal object of our invention is to do away entirely with this discoloring and dulling of the reflector and the surrounding case.

A further object of our invention is to provide means for utilizing the waste heat of such stoves in heating water. The heat which is radiated against the side walls and reflector is utilized in this manner by means which will be described more fully hereinafter.

Our invention consists essentially in the provision of water cooling means for preventing the oxidation and dulling of the reflector and the surrounding case.

In the attached drawing, which is for illustrative purposes only we show one method of accomplishing this result.

In this drawing Figure 1 is a sectional elevation of a stove and tank embodying our invention.

Fig. 2 is a plan view of same.

In the form shown in the drawing, the heating coils 11 are carried in mica strips 12 having metal eyelets 13 secured therein, these coils 11 being connected into a single series which is fed through an attachment plug 14 and a cord 15. The mica strips 12 are supported by metal members 10. Such stoves are common in the art, and a detailed description of their construction is not necessary at this time. The coils 11, the mica strips 12, and their supporting structure, are secured inside a wall 16 which is preferably of polished metal, and in the ordinary form of heater it is this wall which becomes discolored and dulled with the heat. Secured directly below the heating coils 11 is a reflector 17, this reflector being of polished metal and being preferably placed very close to the coils 11 if a high efficiency is to be obtained.

In the form of our invention illustrated in the drawing, we provide a metal member 18 which coöperates with the reflector 17 to form a primary inclosed chamber 19, the member 18 being supported on legs 20. The primary inclosed chamber 19 is liquid tight. In a similar manner, a metal member 21 cooperates with the inner wall 16 to form a secondary inclosed chamber 22 which is also liquid tight. In the chambers 19 and 22 we place a liquid, preferably water, this liquid being for the purpose of absorbing the heat which is not radiated from the reflector 17, and which is ordinarily absorbed in the walls of the chamber 22. By the use of water in the chamber, or chambers, we are able to prevent their burning or oxidization, so that the stove will maintain a high efficiency throughout its life. In some cases the chamber 22 may be omitted, the chamber 19 alone being used. In order to utilize the heat absorbed by the liquid in the chambers 19 and 22, we provide a reservoir 30, this reservoir being connected to a vertical pipe

31, this vertical pipe 31 being connected by suitable couplings 32 with flexible hose 33 and 34 which connect with the chambers 19 and 22 respectively. By the use of the reservoir 30 we are enabled to use large quantities of water so that there is no danger of the water being turned to steam during the operation of the stove, and we are able to utilize this hot water for various purposes.

In the sketch shown, the chamber containing the liquid is shown below and around the heating element. In other devices made and commonly sold these chambers could be placed in other positions, as structural convenience might require.

We claim as our invention:—

1. An electric heating device, comprising an electric heating element, a reflector surface placed near said heating element, and means for cooling said reflector surface by means of a liquid.

2. An electric heating device, comprising an electric heating element, a reflector surface placed near said heating element, walls forming an inclosed chamber adjacent to said reflector, and a body of cooling fluid in said chamber.

3. An electric heating device, comprising an electric heating element, a reflector surface placed near said heating element, walls forming an inclosed chamber adjacent to said reflector, a body of cooling fluid in said chamber, a reservoir, and means for connecting said inclosed chamber with said reservoir.

4. An electric heating device, comprising an electric heating element, a reflector placed near said heating element, walls forming an inclosed chamber adjacent to said reflector, walls forming an inclosed chamber around the outer wall of the device, and a body of cooling fluid in said chambers.

5. An electric heating device, comprising an electric heating element, a reflector placed near said heating element, walls forming an inclosed chamber adjacent to said reflector, walls forming an inclosed chamber around the walls of the device, a body of cooling fluid in said chambers, a reservoir, and means for connecting the interior of said chambers with said reservoir.

6. An electric stove comprising a heating element adapted to be raised to a radiating temperature by the passage of an electric current therethrough, a reflector located below said heating element, means for cooling said reflector, and means for supporting a cooking utensil over said heating element in such a position that the heat radiated directly from said heating element and reflected from said reflector impinges on the bottom of said utensil.

7. An electric stove comprising a heating element adapted to be raised to a radiating temperature by the passage of an electric current therethrough, a reflector located below said heating element, means for maintaining a body of water in thermal relation with said reflector, and means for supporting a cooking utensil over said heating element in such a position that the heat radiated directly from said heating element and reflected from said reflector impinges on the bottom of said utensil.

8. An electric stove comprising a heating element adapted to be raised to a radiating temperature by the passage of an electric current therethrough, a reflector located below said heating element, walls forming an inclosed chamber, a body of water in said chamber, said chamber being so placed as to allow the heat absorbed in said reflector to pass readily into said water, and means for supporting a cooking utensil over said heating element in such a position that the heat radiated directly from said heating element and reflected from said reflector impinges on the bottom of said utensil.

9. An electric stove comprising a heating element adapted to be raised to a radiating temperature by the passage of an electric current therethrough, a reflector located below said heating element, walls forming an inclosed chamber, a body of water in said chamber, said chamber being so placed as to allow the heat absorbed in said reflector to pass readily into said water, a reservoir, means for connecting the interior of said chamber with the interior of said reservoir, and means for supporting a cooking utensil over said heating element in such a position that the heat radiated directly from said heating element and reflected from said reflector impinges on the bottom of said utensil.

In testimony whereof, we have hereunto set our hands at Ontario, California, this 24th day of January, 1916.

WILLIAM A. RANKIN.
HENRY D. LARAWAY.