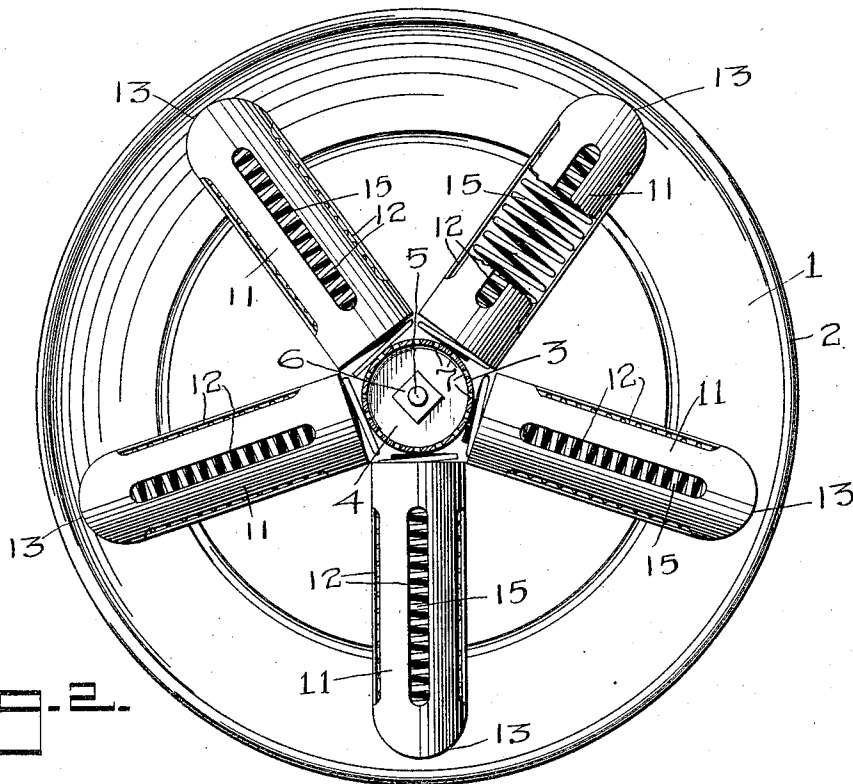
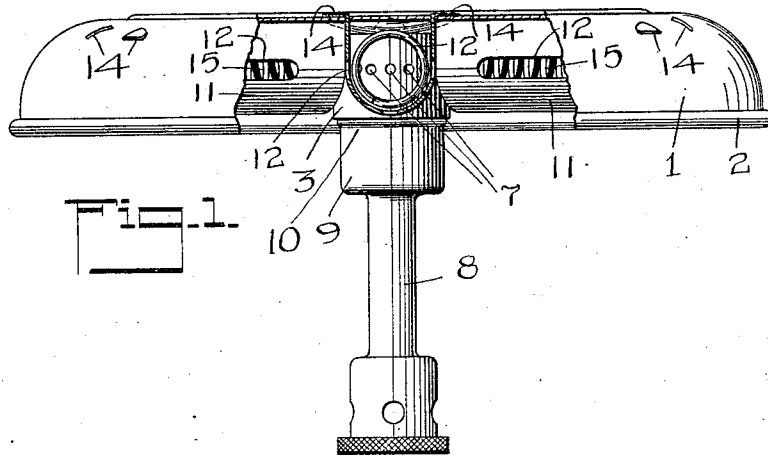


C. P. SHINN.
STOVE OR HEATING DEVICE.
APPLICATION FILED JULY 17, 1911.

1,046,228.

Patented Dec. 3, 1912.



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UNITED STATES PATENT OFFICE.

CHARLES P. SHINN, OF BROOKLYN, NEW YORK.

STOVE OR HEATING DEVICE.

1,046,228.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed July 17, 1911. Serial No. 638,802.

To all whom it may concern:

Be it known that I, CHARLES P. SHINN, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Stoves or Heating Devices, of which the following is a description.

This invention relates to stoves or heating devices, and, particularly, to devices of the class which are applied to gas-burners, gas or other similar fixtures.

Among the objects of my invention may be noted the following: to provide a strong and very effective heating device which may be used for heating purposes, for boiling water and for cooking cereals and other simple articles of food; to provide a simple, cheap and serviceable stove adapted to gas-burners or to the ordinary Bunsen burner for heating or cooking purposes; to provide a stove of the character noted made of few parts and so constructed that it will support articles of considerable size and will diffuse the heat thoroughly over the entire area of the heating plate; to provide a stove of the character noted with a heating element so constructed that any one of its units can be removed and a new one substituted for it without disturbing the other units of said element; and to provide a stove or heater in which the products of combustion are most completely consumed, thus rendering the device odorless, effective as a heater, and economical in use.

With the above objects in view and others which will be noted during the course of this description, my invention consists in the parts, features, elements and combinations of elements, all as hereinafter described and claimed.

In order that my invention may be clearly understood, I have provided drawings wherein:

Figure 1 is a side elevation of a stove embodying my invention, the figure having a portion of the rim of the heating-plate broken away and one of the heating-units of the heating-element shown in cross-section, thus disclosing details of construction; and Fig. 2 is a bottom plan view of the device showing a part broken away to disclose details of construction and also showing the burner-cylinder in cross-section.

Referring to the drawings, the numeral 1 indicates the heating-plate, in this instance

of my invention, formed dish-shaped so as to provide a beaded flange 2, and made of any suitable metal which will radiate the heat freely and will also be strong enough to support articles usually placed upon a stove of this character. The heating plate is preferably made in the form shown; but, it may also be formed by extending the flange 2 a greater degree inwardly toward the center of the plate, the form actually given being with reference to strength and its effectiveness in consuming the products of combustion by confining the flame and gas within the circumference of the plate. Centrally, the heating-plate is provided with a cylinder 3, closed at its top 4, and secured by the latter to the inner side of the heating-plate, by a screw 5 and nut 6, said cylinder having a circular series of apertures 7 for the gas to pass through from an ordinary Bunsen burner 8, modified so as to coöperate with the cylinder by providing the enlargement 9 to enter and snugly fit within the cylinder, and a circular flange 10 to receive the lower end of the cylinder and limit its downward movement. To provide an effective heating-element, I secure a series of open-sided tubes 11, slotted longitudinally at 12, and arranged radially relatively to the central cylinder, said tubes extending from the cylinder to near the circumference of the plate 1. The tubes are rounded at their outer ends, at 13, to conform to the curvature of the plate 1, and along the edges of their open side are provided with ears 14, bent in opposite directions after being passed through slits in the plate, as shown in Fig. 1. This makes an effective joint or fastening without riveting or other permanent securing devices, and enables the tubes to be removed at will and readily set in place.

Each of the tubes has combined with it a close coil 15 of heat-conducting material, which may be any suitable material, said coils being laid loosely within the tubes but of a diameter to fit snugly therein so as not to rattle. One end of each coil rests against the cylinder and its other end rests against the depending wall or flange of the plate. The heating-element thus comprises any desired number of units, the latter consisting of a coil within a tube, as clearly shown in the drawings. For effectiveness in operation and for compactness of construction, I have found it to be desirable to associate at least five of the units, as shown

in the drawings, in combination with the heating-plate; but, I do not purpose being restricted to the exact number of units employed, as I may use less than five and produce an effective heater for the purpose. Of course, the size of the units may control the number employed; but, if it is desired to use a great number, in order to rapidly transmit the heat to the farthest points of the plate, a larger number of smaller units may be employed. I have, however, found the arrangement shown in the drawings quite satisfactory and exceedingly effective and have, in consequence, portrayed the units into coöperation with the flange 2 and rounding the ends 13 of the tubes so as to conform to the shape of the flange, a close fit is provided between the tubes and flange which prevents the gas and flame from being projected, under pressure, beyond the flange; and, by inclosing the coils in the tubes, the gas is confined and prevented from being objectionably diffused. Moreover, by slotting the tubes, as shown, a better mixture of gas and air is provided for, securing substantially complete consumption of the products of combustion. Hence, by my construction of heating unit, I am enabled to produce a much more intense heater and one which is much more effective for its heating area. I have also found in practice that, by inclosing the coils in the slotted tubes, the plate becomes heated much quicker and retains its heat much longer, while by slotting the tubes greater radiation is permitted and the entire unit is given longer life.

In operation the gas, being turned on through the burner 8, will be ignited at the cylinder and will radiate its flame through the tubes and coils and spread laterally from one unit toward another. The tubes and coils will become excessively heated and the heat will also be transmitted to the plate which will radiate a great heat for heating purposes; and any culinary vessel may be placed on the plate for cooking purposes.

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

1. A device of the character described having, in combination, an imperforate heating-plate, and a series of heating-units beneath the same and inclosed thereby, each unit being composed of a tube-inclosed coil, means for supporting said units on the bottom of said plate, a burner for supporting said device having means coöperating with said units, and said units being arranged radially relatively to said plate and burner.

2. In combination, an imperforate heating-plate and a plurality of heating-units arranged beneath and within the periphery of said plate and parallel with the latter, means for securing each unit removably to the bottom of said plate, a burner arranged at a right angle to and having means for supporting said device, and coöperating means between said units and burner for heating the former.

3. In combination, an imperforate heating-plate having a burner-cylinder secured centrally and perpendicularly thereto, and a plurality of detachable heating-units secured radially to the bottom of said plate and coöperating with said burner-cylinder to receive the flame from the latter.

4. In combination, an imperforate heating-plate of circular form provided with a depending flange, a burner depending from said plate within the compass of said flange, and a plurality of heating-units operatively associated with the plate and burner, and means for removably securing said heating-units to the plate.

5. In combination with a heating-plate having a central burner-cylinder, a heating element composed of a plurality of units each consisting of an open-side tube inclosing a coil, the open side of the tube being secured to the heating-plate, and the said units and cylinder having coöperating openings for passage of the fluid.

6. In combination with a heating-plate, a plurality of heating-devices carried by said plate, each of said devices comprising a tube provided with slots, and a coil within said tube, the latter and the plate being combined so as to form a closure for the coil and confine the gas until completely consumed, and a burner arranged in coöperative relation to said devices which latter and the burner are provided with coöperating fluid passages.

7. In combination, a flanged heating-plate, a burner-cylinder projecting from the center thereof and having apertures therein, a plurality of tubular members radiating from and coöperating with the cylinder and extending to and coöperating with the flange of the heating-plate, a coil in each of said members, and means for detachably securing the parts in the coöperative relation recited.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES P. SHINN.

Witnesses:

CHAS. McC. CHAPMAN,
M. E. HELLOCK.