

S. T. WILLSON.
GAS BURNER.
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927,825.

Patented July 13, 1909.

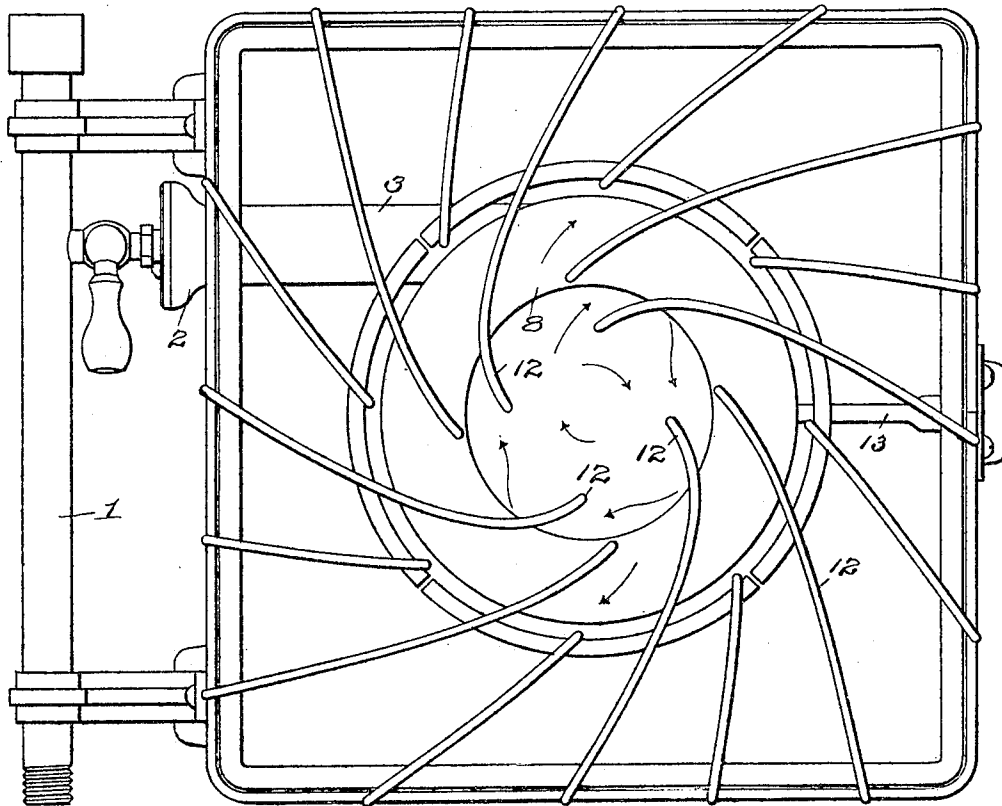


FIG. 1.

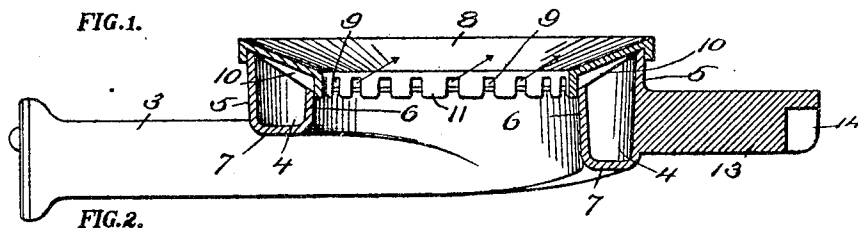


FIG. 2.

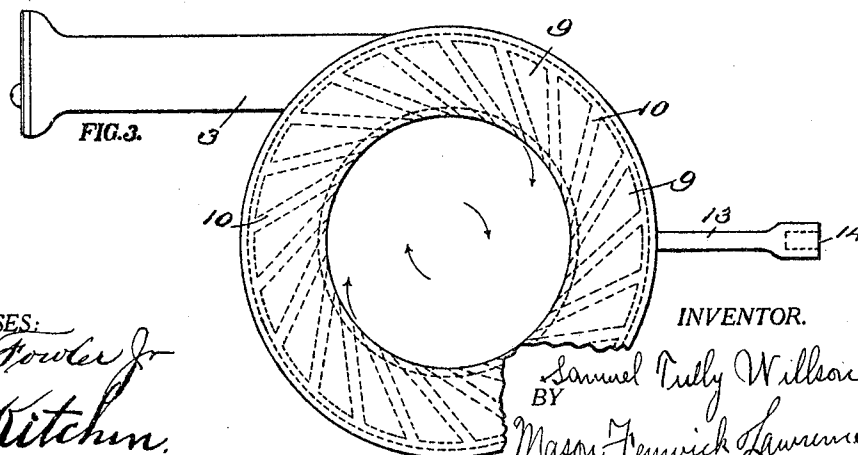


FIG. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL TULLY WILLSON, OF DENVER, COLORADO.

GAS-BURNER.

No. 927,825.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL TULLY WILLSON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Gas-Burners; 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 improvements in gas burners, the specific design described being intended for stoves for culinary purposes, which are adapted to heat articles positioned on or above the same.

The invention comprises the production of a burner formed with a gas chamber into which gas is brought preferably at a tangent, and openings for discharging the gas also at a tangent.

The invention further comprises the production of a burner having a gas chamber formed of varying sectional area, the greatest being where the same receives gas from the supply pipe or mixer.

When designed for use for culinary purposes the invention further comprises the production of a burner formed with a vessel support or grate designed to assist rather than hinder the whirling or cyclonic motion of the flame.

The object in view is the production of a gas burner with a chamber for receiving a gaseous mixture and for substantially evenly distributing the same to the discharge openings of the burner.

Another object in view is the production of a burner in which the gas is discharged into the flame at a tangent for giving a gyratory or rotary motion to the flame thereby causing the gas to remain longer and be entirely consumed within the desired area.

With these and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings:—Figure 1 is a top plan view of a burner formed according to the present invention secured to a stove of any approved or ordinary construction. Fig. 2 is a vertical section through a burner formed according to the present invention. Fig. 3 is a top plan view

partially transparent of a burner formed according to the present invention.

In the provision of gas burners, it has been found that much of the gas is not consumed until the same has passed a considerable distance above the burner and consequently when a kettle or other device is to be heated the entire consumption of gas does not take place beneath the kettle. This burning of the gas a considerable distance away from the burner is objectionable in that the heat is substantially lost, and therefore, the full effect of the gas being used is not secured. It is among the objects of the present invention to obviate these difficulties and to present a burner in which a greater consumption of gas takes place beneath the kettle or the like, and comparatively near the burner proper. By this kind of a structure a greater portion of the heat is brought in contact with the kettle or other device being heated, and consequently absorbed thereby. In order to accomplish these results I provide a burner in which an important feature is the discharging of the gases at a substantial tangent so as to give the flame as well as the gas a rotary or gyratory movement, and consequently compel the gas to travel a much greater distance than in other burners while still beneath the kettle or other article being heated, resulting in a more complete combustion of the gas at the desired point.

Referring more particularly to the drawing, there will be seen a preferred structure, which is designed to accomplish these desirable results, in which 1 indicates a feed main pipe of any desired kind which is designed to supply gas to a mixer 2. From the mixer the mixed gas and air is led by a pipe or tube 3 into a chamber 4 of the burner proper. The chamber 4 is of peculiar construction and particularly adapted for accomplishing the objects of the present invention. It will be observed particularly from Figs. 1 and 3 that the gas is led into the burner at a tangent and is consequently given an initial rotary or spiral movement. The chamber 4 is formed of different depths throughout its length and it is designed to have the gas from pipe 3 discharged at the deepest point so that there will be an ample supply of gas to be distributed around the burner. It will also be observed that the chamber 4 is substantially a trough formed

by walls 5 and 6, together with bottom 7 and covered by a covering or lid 8.

The lid 8 forms one of the important features of the present invention and, as clearly seen in Figs. 2 and 3, the same is formed with grooves or ways 9 between projections or lugs 10. The top edge of wall 5 is on one plane, and the top edge of wall 6 on another plane, so that the covering member 8 is formed at a substantial angle, as clearly seen in Fig. 2. The lugs or members 10 are formed on the bottom or under side of cover 8 and may be beveled their entire length and designed to have their thickest portion near the inner end, that is, the end that projects over the wall 6. It will be observed that the cover 8 has a circular opening in the center and that the opening is of smaller diameter than the space between walls 6, so that the covering projects a short distance over the inner wall 6. In order to prevent accidental removal of the covering 8 and also to form a protection and drip, lugs 11 are provided that depend from the lower ends of members 10 and are preferably formed integral therewith. By this structure if any liquid should be spilled upon covering 8 the same will run down and drop off lugs 11 rather than enter into the spaces or ways 9 between members 10. By thus having members 10 and 11 formed as a drip the way 9 is prevented from being clogged or filled with anything to impede or hinder the free discharge of gas. When the members 10 rest upon the inner wall 6, the ways 9 walled by the members 10, the top part of the cover 8, and the wall 6 form openings or apertures through which the gas is designed to be discharged. These openings, however, are a short distance to the rear of the lower ends of members 10 and consequently these ends together with the top part of cover 8, project over the inner wall 6 and provide a protection or shield to the opening.

When the gas first enters the chamber 4 it is given an initial rotary movement because of the tangent at which it enters and is then given a second or more decided rotary movement by being led through grooves or ways 9 and discharged into the central opening of the burner. A support as seen in Fig. 1 is used which is provided with members 12 that are preferably curved or arc shaped. It will be evident that the support may be omitted and the burner operate successfully and consume substantially all the gas before the same has reached any considerable distance from the burner but usually the auxiliary covering or support is preferable especially when it is desired to support an article above the burner.

The burner may be supported in any de-

sired way as, for instance, by the pipe 3 at one side, and a supporting member 13 at the other side. The supporting member 13 may be provided with a notch, as 14, that is designed to fit over a lug or projection in a stove and consequently prevent the burner proper from tilting or being moved out of position.

In operation it is only necessary to turn the gas on and as the same escapes from ways 9 into the central opening of the burner, to light the same in the usual manner. The traveling of the gas through pipe 3 and chamber 4 and tangent ways 9 will cause the same to be discharged at a tangent and as the same arises will gradually turn or rotate somewhat spirally. This will hold substantially all the gases close to the center of the burner until the same have been consumed at the point desired and all the heat units produced may be utilized. It will be understood that where the word "tangent" is used herein it is used not in its technical sense but to mean a line touching the circle in a direction approximating a tangent.

It is evident that the principle of this invention may be employed in various forms as, for instance, to so arranging the burner as to discharge the gas on the outside of chamber at a tangent thereto, instead of on the inside.

What I claim is:—

1. In a gas burner, a chamber, means for discharging gas at an approximate tangent therein, means for discharging said gas at an approximate tangent therefrom, and lugs for holding said last mentioned means in position.

2. In a gas burner, an annular trough, a removable annular member for the trough, spirally disposed ribs internally of the cover member, and lugs carried at the inner periphery of the cover member producing intervening gas escapes between the spiral ribs.

3. A gas burner comprising an annular chamber, decreasing uniformly in depth throughout its circumference, a gas inlet communicating tangentially with the chamber at its deepest point, a removable cover member having spaced lugs at its inner periphery producing intervening gas escape openings, and spiral ribs formed upon the inner side of the removable cover adapted to guide the gas to the openings.

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

SAMUEL TULLY WILLSON.

Witnesses:

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