F. L. GILMAN AND J. R. WILSON.

AUTOMATIC GAS BURNER.

APPLICATION FILED MAY 3, 1918.

1,312,441.

Patented Aug. 5, 1919.

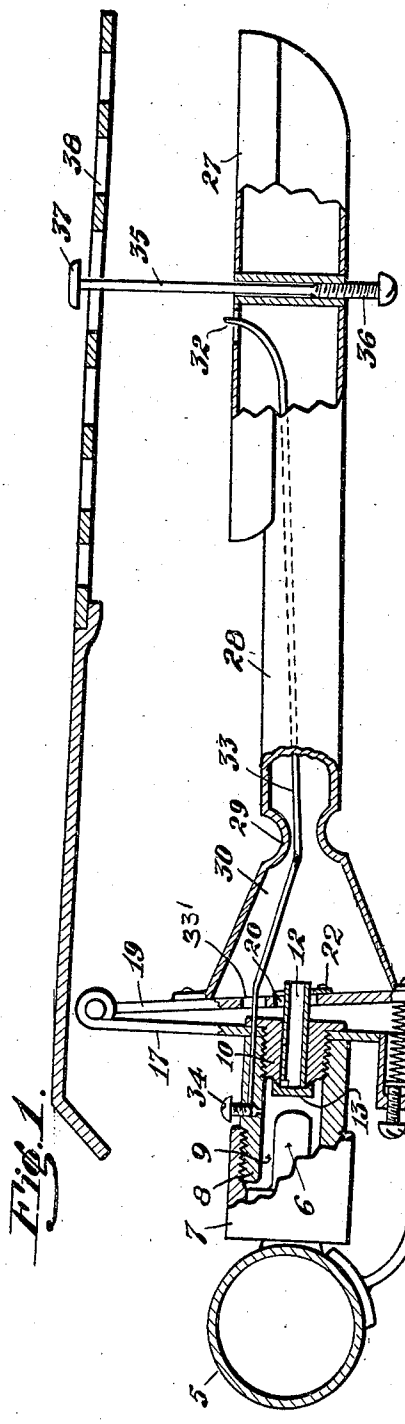


Fig. 1.

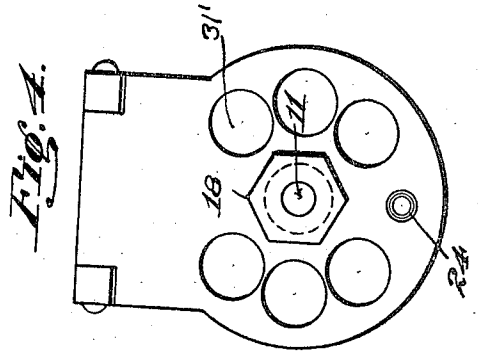


Fig. 4.

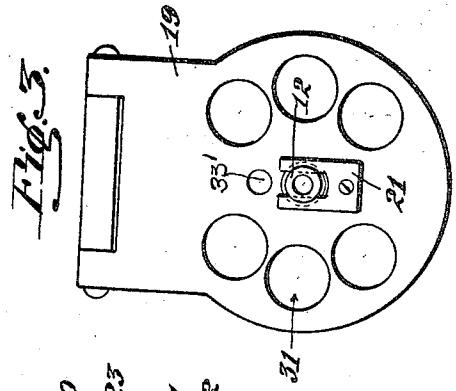


Fig. 3.

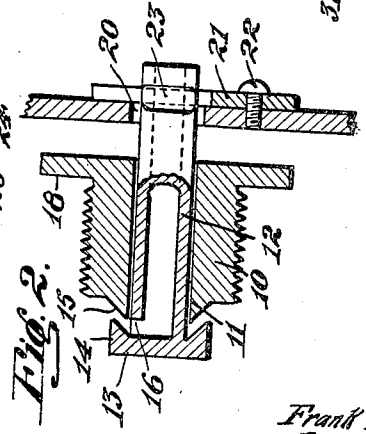


Fig. 2.

INVENTORS:
Frank L. Gilman;
Joseph R. Wilson;
BY
R. S. Berry
ATTORNEY.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK L. GILMAN AND JOSEPH R. WILSON, OF PASADENA, CALIFORNIA.

AUTOMATIC GAS-BURNER.

1,312,441. Specification of Letters Patent. Patented Aug. 5, 1919.

Application filed May 3, 1918. Serial No. 232,415.

To all whom it may concern:

Be it known that we, FRANK L. GILMAN and JOSEPH R. WILSON, citizens of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented new and useful Improvements in Automatic Gas-Burners, of which the following is a specification.

This invention relates to automatic gas burners and has as its object to provide a burner for gas stoves which is adapted to be operated by placing a cooking utensil thereon or removing it therefrom in such manner that the burner will not emit a flame unless the utensil is resting on an operating head carried by the burner controlling the flow of gas to the latter, thereby effecting a saving in gas consumption.

The invention is illustrated in the accompanying drawings, in which;

Figure 1 is a view of the burner in side elevation with parts broken away.

Fig. 2 is an enlarged detail view of the gas control valve showing the connection between same and the burner whereby the flow of gas through the valve is controlled.

Fig. 3 is a view in elevation of a hinged plate or leaf on which the burner is supported.

Fig. 4 is a view in elevation of a fixed plate on which the burner supporting leaf is hinged and which is supported by the valve casing.

More specifically 5 indicates a gas supply manifold pipe fitted with an outlet nozzle 6, and 7 indicates an internally threaded collar attached to the nozzle into which is screwed a tubular valve casing 8 forming a gas chamber 9 into which gas from the nozzle is discharged. The outer end of the valve casing is fitted with a screw plug 10 having a bore 11 therethrough in which a tubular valve stem 12 is slidably mounted, the inner end of the valve stem carrying an inwardly opening valve 13 formed with an inwardly extending annular flange 14 beveled on its inner face to seat on a tapered valve seat 15 formed on the inner end of the plug. A port 16 in the valve stem at its juncture with the valve provides communication between the chamber 9 and the interior of the valve stem when the valve is lifted from its seat but which port is closed when the valve is in its seated position.

A vertical plate 17 is fixed on the valve casing and is attached thereto by a flange 18 on the plug which clamps the plate against the end of the casing, and hinged to the plate is a depending leaf 19 having an opening 20 through which the valve stem extends. A connection is effected between the leaf and valve stem by means of a forked plate 21 detachably fastened to the leaf by a screw 22 the prongs of which plate engage channels 23 formed on the sides of the valve stem adjacent to its outer end in such manner that rocking movement of the leaf will effect movement of the valve stem. A spring 24 bears between the lower portion of the leaf and an adjusting screw 25 carried in the end wall of a socket 26 on the fixed plate and operates to normally maintain the hinged leaf in an outermost position with the valve in its seated position. This spring thus serves to normally retain the valve in a closed position and as the tension of the spring may be adjusted by the screw 25 and as the contact between the valve and its seat is tapered a tight closure of the valve is insured. The pressure of gas in the chamber 9 on the valve further insures the valve resting tightly on its seat.

27 indicates a burner which may be of any suitable construction having a duct 28 leading thereto, this duct terminating in a restricted throat 29 opening to a mixing chamber 30 the walls of which are attached to the leaf and converge from the leaf to their intersection with the walls of the throat. The throat is arranged to open directly opposite the open outer end of the valve stem so that gas discharged from the stem will be injected into the duct through the throat centrally of the mixing chamber. Air inlet openings 31 are formed in the leaf through which air is admitted to the mixing chamber, the air being drawn into the chamber by the suction induced therein by the injecting action of the gas passing through the restricted throat. The fixed plate 17 is formed with a series of openings 31′ corresponding to and disposed opposite the openings 31 in the leaf 19 so as to permit a free passage of air to the last named openings.

A pilot light nozzle 32 is disposed adjacent the burner and is formed on a tube 33 leading through the duct, throat, mixing chamber and through an opening 33′ in the hinged leaf to a small gas outlet formed in the valve casing fitted with a regulating screw 34.

Adjustably mounted on the burner is a stem 35 one end of which is formed with a screw 36 threaded in the burner and the upper end of which is provided with a head 37 adapted to extend a short distance above the upper face of a grate 38 so as to be contacted and depressed by a cooking utensil placed on the grate.

In the operation of the invention, on depressing the head 37 the burner will be depressed therewith by reason of the hinged mounting of the leaf carrying the burner, the leaf being swung rearwardly toward the fixed plate and operating through the forked plate to shift the valve stem and open the valve, the valve remaining open during such time as the burner remains depressed and automatically closing on removing pressure from the head by action of the spring 24.

We claim:

1. The combination of a gas-burner, a duct leading thereto, a convergent chamber communicating with said duct at its reduced end, a restricted throat at the intersection of the duct and chamber, a fixed plate, a dependent leaf hinged at its upper end to swing outwardly relative to the plate to which the wall of the chamber is attached, said leaf having perforations to admit air to the enlarged end of the chamber, a valve casing attached to said plate, a valve therein, a tubular stem leading from the valve and connected to the hinged leaf and opening axially of the convergent chamber opposite the center of the restricted throat, and spring means for retaining the hinged leaf in an outward position serving to normally close said valve.

2. The combination of a gas-burner, a duct leading thereto, a convergent chamber having a restricted throat at its reduced end opening to said duct, a hinged leaf attached to the walls of said chamber having perforations opening to the enlarged end of the chamber, a tube connecting with said leaf opening to the chamber opposite the throat, a spring acting on said leaf for yieldably retaining it in an outward position, and a valve normally closed by the action of said spring connected to said tube and adapted to open on inward movement of the leaf to admit gas to said tube.

3. The combination of a gas-burner, a duct leading thereto, a perforated hinged leaf to which said duct is attached, a valve casing, a tube connected to said leaf slidably extending into said casing, a valve for controlling admission of gas to said tube adapted to open on rearward movement of the leaf to admit gas to the duct and burner, a spring for yieldably holding the leaf in an outward position and retaining the valve closed, and means acting on said spring for adjusting the normal position of the leaf.

4. The combination of a gas-burner, a duct leading thereto, a perforated hinged leaf to which said duct is attached, a valve casing, a tube connected to said leaf slidably extending into said casing, a valve for controlling admission of gas to said tube adapted to open on rearward movement of the leaf to admit gas to the duct and burner, and a spring for yieldably holding the leaf in an outward position and retaining the valve closed.

5. The combination of a valve casing having a chamber communicating with a source of gas supply, a hinged leaf, a gas burner carried by said leaf, a tube connected to said leaf slidably extending into said valve casing, a valve for closing communication between said tube and chamber connected to said tube and adapted to be opened on movement of the leaf in one direction, and a pilot light tube leading from said chamber in the valve casing to the burner.

FRANK L. GILMAN.
JOSEPH R. WILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."