Oct. 23, 1928. 1,688,487

W. F. DESTER

GAS BURNER IGNITER

Filed July 14, 1926 2 Sheets-Sheet 1

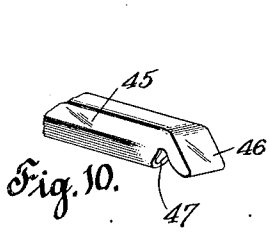


Fig. 10.

Fig. 1.

Fig. 11.

Fig. 12.

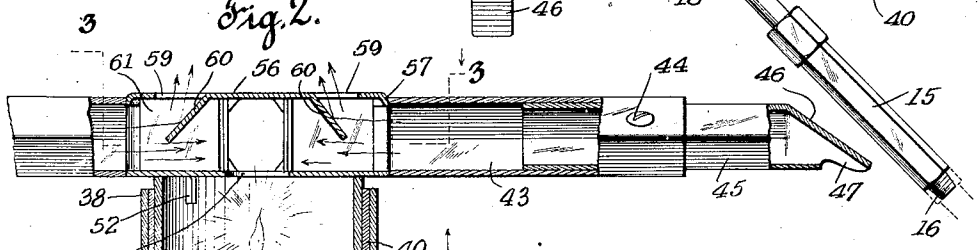
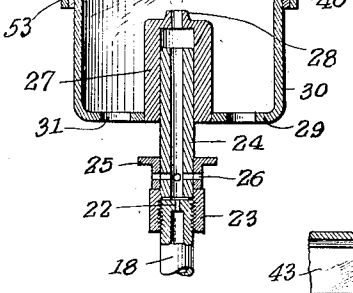


Fig. 2.



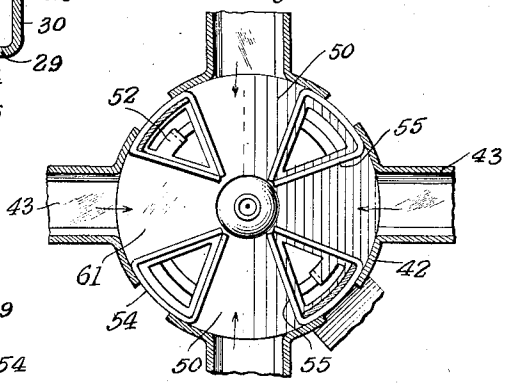


Fig. 3.

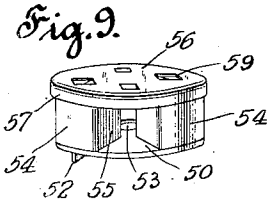


Fig. 9.

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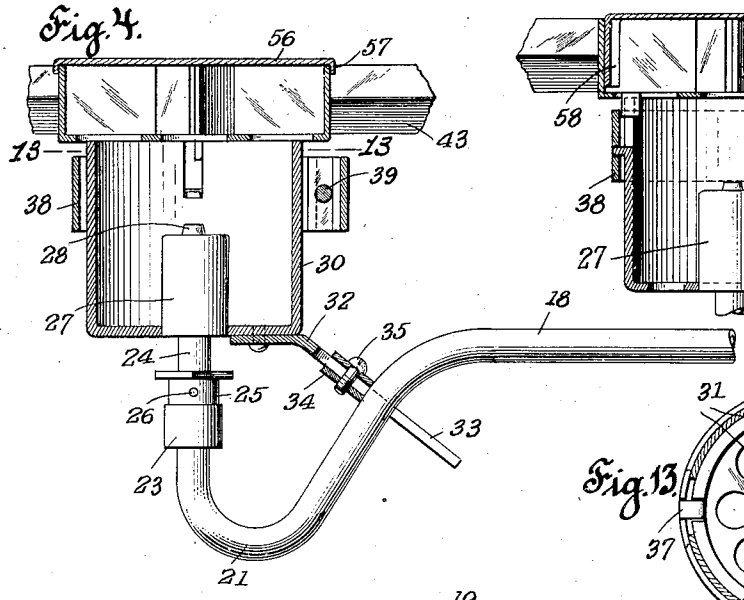
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GAS BURNER IGNITER

Filed July 14, 1926 2 Sheets-Sheet 2

Fig. 4.



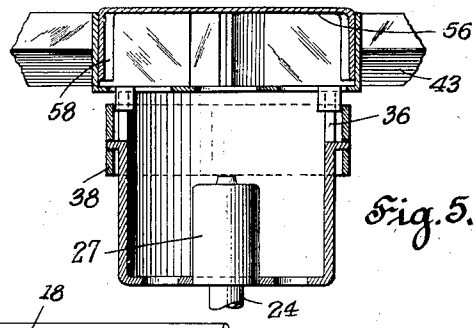


Fig. 5.

Fig. 13.

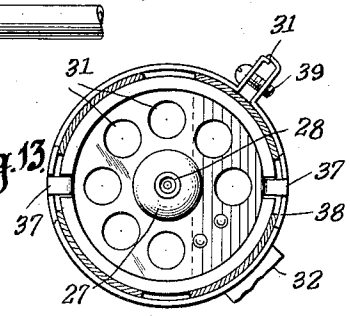


Fig. 6.

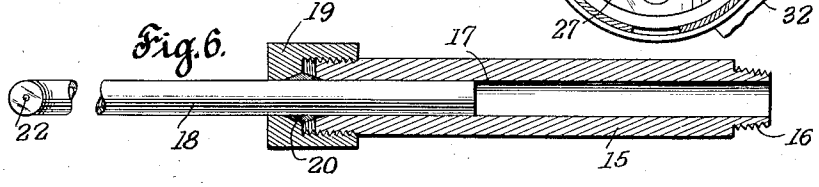


Fig. 7.

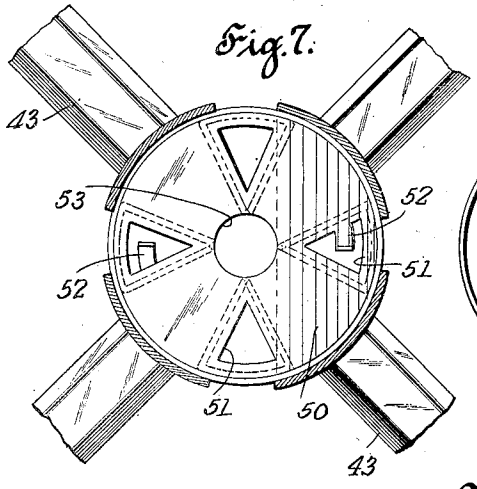


Fig. 8.

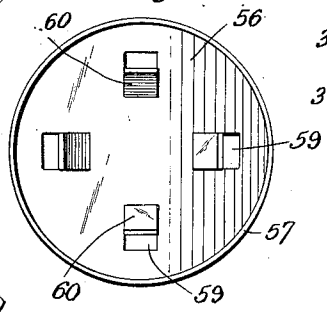


Fig. 15.

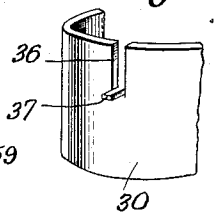
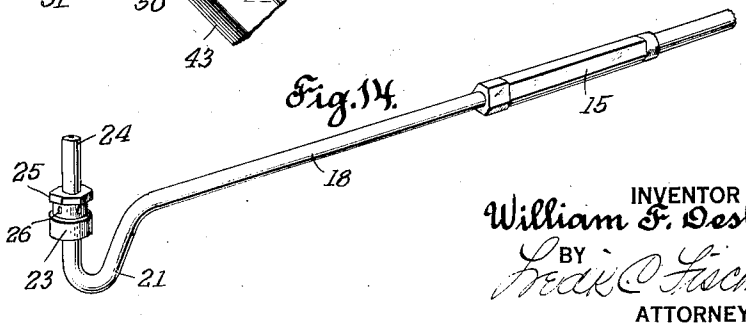


Fig. 14.



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UNITED STATES PATENT OFFICE.

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GAS-BURNER IGNITER.

Application filed July 14, 1926. Serial No. 122,290.

This invention relates to gas burners and burner igniters as used in connection with gas stoves of conventional type.

The control cocks of such stoves, even if originally tight, become loosened by repeated use, and in any case are subject to being easily opened, carelessly or inadvertently by children, contact of clothing and other causes, leading not only to waste of gas, but developing a highly dangerous mixture of the escaping gas with the atmosphere of a room, causing possible asphyxiation, explosion and concomitant effects which are well known.

In ordinary gas stoves having a plurality of burners, a constantly lit pilot is employed for the sole purpose of producing an igniting flame, increased at will by a separate valve, whereby any selected burner may be ignited, and such operation not infrequently acts to extinguish the pilot flame but does not close off an insiduous small although constant issue of gas.

One of the advantages of the present invention is in the provision of means operable automatically to ignite any or all of a series of burners through which gas escapes, either accidentally or intentionally, the lighting action being instantaneous.

A further feature is to utilize the otherwise wasted heat of the pilot as a simmerer or other constant source of moderate warmth.

Another purpose is in the production of a device having the foregoing advantages for the ordinary pilot burner without any change being made to the other burners whatever, being in effect an attachment.

Other advantages, such as adjustability, ease of installation and a decided saving in gas consumed, are attained by the novel construction and combination of parts, hereinafter described and shown in the accompanying drawings, constituting a component of this disclosure, and in which:—

Figure 1 is a top plan view of an embodiment of the invention as arranged for operation.

Figure 2 is an enlarged partial sectional view of the same looking on line 2—2 of Figure 1.

Figure 3 is a sectional view taken on line 3—3 of Figure 2.

Figure 4 is a fragmentary partial sectional, partial side elevational view of the pilot light and supply tube.

Figure 5 is a similar view taken in a plane at a right angle to Figure 4.

Figure 6 is an enlarged sectional view of the pilot supply pipe at its inlet end.

Figure 7 is a transverse sectional view similar to Figure 3 but taken in a plane directly under the cover plate.

Figure 8 is a top plan of the cover.

Figure 9 is a perspective detail of the current deflecting unit.

Figure 10 is a fragmentary perspective view of the gas intake.

Figure 11 is a similar view of the inner end of the same.

Figure 12 is a rear elevational view thereof.

Figure 13 is a transverse sectional view taken on line 13—13 of Figure 4.

Figure 14 is a perspective view of the pilot burner and feed pipe, drawn to a reduced scale.

Figure 15 is a fragmentary perspective view of the combustion chamber.

Stated in general terms the device is comprised of a chamber removably engaged over a fixed pilot burner of the Bunsen type and connected with the upper end of the chamber is a plurally ported casing into which lead conductors extending over the adjacent openings of the several burners of the stove.

The pilot is supplied with gas delivered from the usual header or burner supply pipe through a nipple 15, the same having a reduced end 16 threaded to suit an opening in the pipe, the nipple being provided with a large longitudinal bore 17 into which is slidably engaged a tube 18.

The outer end of the nipple, which may be hexagonal, is screw threaded to receive a cap nut 19 bored to permit passage of the tube 18 and containing an interior conical seat to receive a packing ring 20 formed with a double cone, the other of which extends into a similar seat in the end of the nipple, this device permitting longitudinal adjustment of the tube 18 but preventing escape of gas at the adjustable joint thus made.

The opposite end of the tube is bent to form a loop 21 having an upright terminal threaded on its exterior and containing a plug in which is a fine aperture 22 for the passage of a proper stream of gas.

Threaded on the end of the tube is a burner base 23 having a reduced cylindrical stem 24 containing a passage considerably greater

in area than the aperture 22. Drilled transversely through the stem are openings intersecting the bore therein and rotatably adjustable on the stem is a snug fitting sleeve 25 having openings 26 by which the admission of air to the burner stem is controlled.

The upper portion of the stem 24 loosely fits within a burner body 27 having a raised central boss 28 through which is a bore in register with the bore of the stem and at which point the escaping mixture of air and gas is ignited.

The burner body is rigidly fixed at its base in a plate 29 forming the bottom of a cylindrical chamber 30. The plate 29 has a plurality of perforations 31 and at one side has riveted to it a bracket 32 presenting forks 33 adapted to straddle the tube 18 at the down-turned angular element of its bent portion 21.

Adjustable on the forks 33 is a clip 34 provided with a clamp screw 35, the clip resting on the tube, as best seen in Figure 4, in such manner as to support the chamber 30, in combination with the stem 24, at different heights on the stem, the chamber being readily removable from the stem and tube by merely raising it.

The open top of the chamber has sheared in its walls a pair of diametrally opposite slots 36 from which radial lugs 37 extend, these lugs freely engaging in appropriate slots formed centrally in the width of a band 38 encircling the chamber 30 and provided with clamping means 39.

A plurality of plates 40, one for each of the stove burners, are bent to conform to the radius of the chamber 30 and disposed interjacently within the clamp band 38 so as to be held rigid.

An outwardly extending flange 41 connects an offset arcuate member 42 of larger radius than the plate 40 and formed integrally with the member 42 is a polygonal tube 43 constituting a socket and provided with a set screw 44.

Slidably adjustable in the socket is another tube 45 shaped at its outer end to present an inclined flanged partial cover 46 over an opening 47 in its bottom wall, this opening being, in practice, disposed in proximity over the nearest openings in the several stove burners, the device as a whole constituting a collector.

It is to be noted that the foregoing arrangement provides for considerable variation in the distances of the stove burners from a central point, represented by the Bunsen pilot burner 28, and also differences in angular positions due to the band 38 clamping the plates when in adjustment.

Positioned on top of the chamber 30 is a gas directional unit of slightly larger diameter consisting of two main parts as shown in detail in Figure 9.

The lower part consists of a metal plate 50 in which are triangular openings 51, their apex being directed inwardly, two of these openings, on opposite sides, having inreaching, down turned prongs 52 diametrically opposed and adapted to engage in the upper ends of the slots 36, their outer edges being flush with the wall of the chamber 30 to position the unit centrally thereon.

At the center of the plate is an opening 53 to allow escape of the products of combustion from the Bunsen pilot burner 28.

Flanges 54 are raised at right angles from the edges of the plate 50 and extending inwardly therefrom are converging flanges 55 meeting at their inner ends and forming walls enclosing spaces accessible through the triangular openings 51.

An upper or cover plate 56 is provided with a down-turned edge 57 somewhat exceeding the diameter of the flanges 54 except at two opposed points where projections 58 are formed to extend within the openings between the flanges 55, closely in contact with the flanges 54, serving to maintain the plate 56 in fixed relation to the bottom plate 50.

The top plate 56 is sheared to produce openings 59 disposed radially over the spaces between adjacent flanges 55 and the tongues 60, formed by shearing, are bent at an angle downwardly to extend into these spaces to about half their heights, these tongues acting as deflectors intercepting a portion of an incoming stream of gas through the tubes 45—43, being disposed directly in front at a spaced distance from their entry and within the unit.

In operation when it is desired to ignite any of the stove burners, indicated at X in Figure 1, the corresponding cock is opened permiting gas to escape through the burner openings, part of which entering the overlying opening 47, being conducted through the tubes 45 and 43, to the space 61 in the upper unit.

Here a portion of the stream is directed upwardly through the opening 59 and another part passes over or through the central opening 53 to become ignited by the constantly lit flame of the Bunsen pilot burner 28.

When this occurs a stream of flame ensues which is reconducted back to the stove burner X causing ignition of all of the several burner openings therein.

Obviously this action is instantaneous and positive, thus assuring ignition of any of the stove burners, the cock on which has been sufficiently opened to allow the passage of gas either intentionally or inadvertently.

As the Bunsen pilot burner is protected from drafts it is practically impossible to destroy its flame except by turning off the feed cock by which it is controlled, and it is to be noted that the pilot light may be made practical use of for simmering and like cooking operations of heat, thus making use of the gas consumed by it economical.

Although I have described my improve-

ments with considerable detail and with respect to certain particular forms of my invention, I do not desire to be limited to such details, since many changes and modifications may well be made without departing from the spirit and scope of my invention in its broadest aspect.

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

1. In an automatic gas burner igniter, the combination with a plurality of gas collectors arranged over a portion of the burner openings, of a Bunsen burner used as a pilot, a chamber enclosing said burner, said burner having a supply pipe, a forked guide on said chamber straddling said pipe, means on said guide to adjust the heighth of said chamber on said burner, said chamber being unsecured, means for clamping said collectors to said chamber, and a receiver unit on said chamber into which all of said collectors lead, said unit and chamber being in communication.

2. In an automatic gas burner igniter, the combination with a plurality of gas collectors arranged over a portion of the burner openings, of a Bunsen pilot burner, a chamber adjustably enclosing said burner and freely supported thereby, a clamp band on said chamber to adjustably clamp said collectors thereto, a receiver resting on said chamber, said receiver being in open communication with each collector and having a central opening leading to said chamber directly over the burner, and means in said receiver to direct gas from the collectors to the mentioned opening.

3. In an automatic gas burner igniter, the combination with a plurality of gas collectors arranged over a portion of the burner openings, of a Bunsen pilot burner, a chamber adjustably enclosing said burner and freely supported thereby, a clamp band on said chamber to adjustably clamp said collectors thereto, a receiver resting on said chamber, means to prevent relative rotation thereof, said receiver having channelled recesses open to the collectors and a passage leading to the pilot burner, a cover removably engaged on said receiver, and deflectors formed on said cover to cause a portion of an entering gas stream to escape.

4. In an automatic gas burner igniter, the combination with an atmospheric burner having a steady attenuated supply of gas and an adjustable inlet for air, of a chamber surrounding said burner, means for adjusting the chamber on the burner, a plurality of telescopic gas collectors, means for clamping said collectors adjustably to said chamber, said collectors extending partially over the burners to be iginited to receive gas therefrom, and means over said chamber to direct gas from said collectors therein, said means permitting escape of an excess of gas and also to return flame from said pilot burner to the burners delivering to said collectors.

5. In an automatic igniter for gas burners, the combination with a plurality of gas collectors arranged over a portion of the burner openings, of a pilot burner, a chamber enclosing said pilot burner, said burner having a rigid supply pipe, support fixed on said chamber, a fork adjustable on said support straddling said pipes, means to adjust the height of said chamber on said burner by changing the position of said fork on the support, and means for clamping said collectors to said chamber.

6. In an automatic igniter for gas burners, the combination with a plurality of gas collectors arranged over a portion of the burner openings, of a pilot burner, a chamber enclosing said pilot burner, said chamber having openings in its top wall, a receiving unit resting on said chamber and to which all of said collectors lead, said unit being in open communication with the chamber, a cover for the receiving unit, and a plurality of deflectors formed on said cover.

7. In an automatic gas burner igniter, the combination with a plurality of gas collectors arranged over a portion of the burner openings, of a central chamber to which said collectors lead, and a pilot burner of the Bunsen type in said chamber, a receiving unit resting on said chamber, a cover for the receiving unit, and a plurality of deflectors formed on said cover.

This specification signed this 12th day of July, 1926.

WILLIAM F. DESTER.