

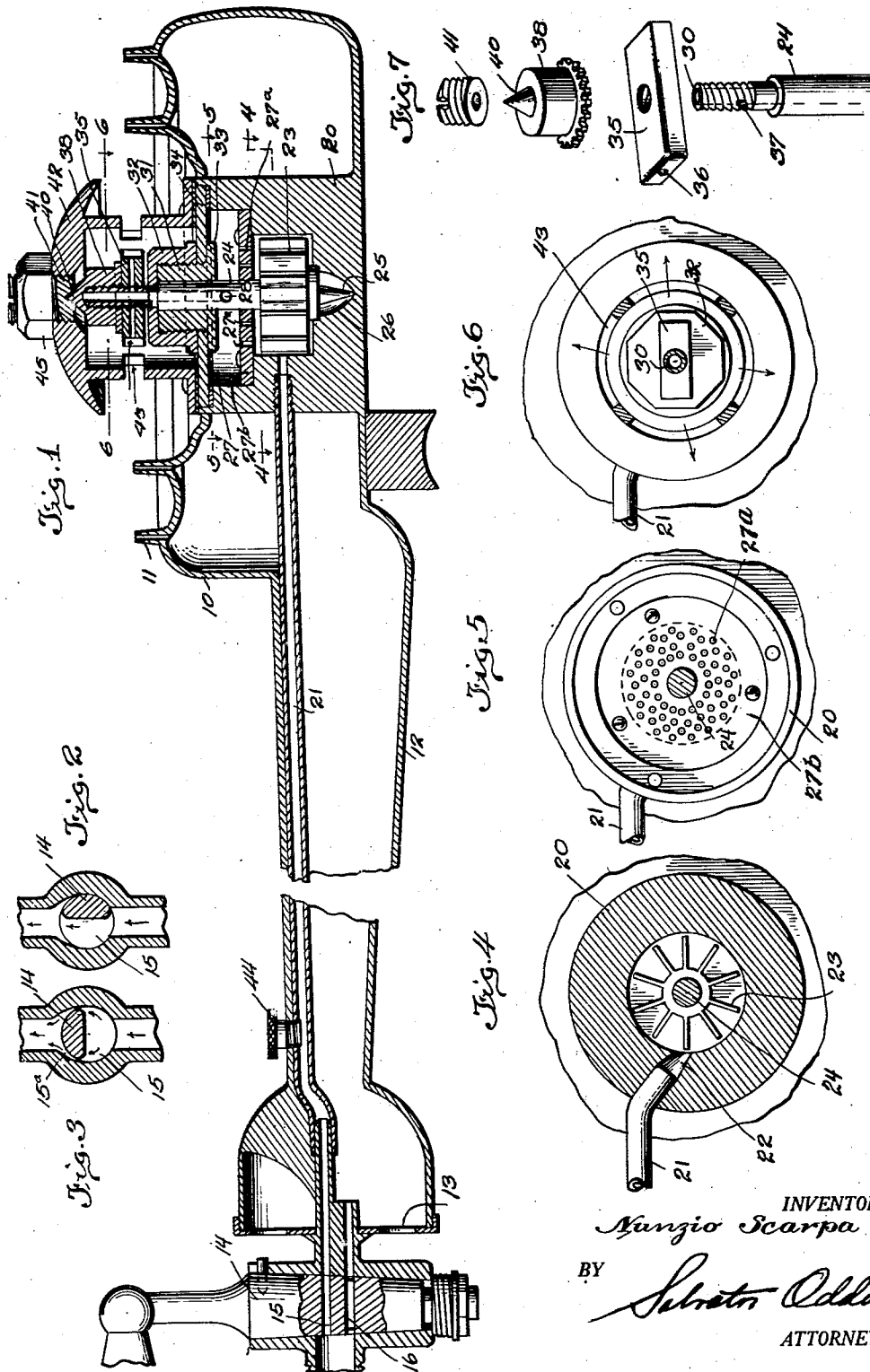
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PILOT BURNER FOR GAS STOVES OR THE LIKE

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PILOT BURNER FOR GAS STOVES OR THE LIKE

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This invention relates to improvements in pilot burners for gas stoves and the like, and more particularly to that type of pilot burner adapted to reliably and efficiently ignite the main burner when the main flow of gas is turned on. While the invention will be hereinafter described more particularly with respect to its relation to burners of a household gas stove, it is, of course, to be understood that the invention is equally applicable to other devices such as gas furnaces, hot water heaters, and so forth.

One of the objects of the present invention is to provide a simple and practical pilot burner for gas stove burners, which will be economical in use and reliable and efficient in operation.

A further object is to provide a pilot burner of the above character, which may be inexpensively manufactured, assembled, and installed directly with the burner without materially adding to the expense.

Other objects will be in part obvious from the annexed drawings and in part hereinafter indicated in connection therewith by the following analysis of this invention.

This invention accordingly consists in the features of construction, combination of parts and in the unique relation of the members and in the relative proportioning and disposition thereof, all as more completely outlined herein.

To enable others skilled in the art to fully comprehend the underlying features thereof that they may embody the same by the numerous modifications in structure and relation contemplated by this invention, drawings depicting a preferred form of the invention have been annexed as part of this disclosure, and in such drawings, like characters of reference denote corresponding parts throughout all of the views, in which—

Fig. 1 is a main longitudinal sectional view showing such parts of the complete apparatus as is necessary to fully understand the invention;

Figs. 2 and 3 are respectively transverse sections thru the burner control cock in its open and closed positions;

Fig. 4 is a transverse sectional view taken substantially along line 4—4 of Fig. 1;

Fig. 5 is a similar view taken substantially on line 5—5 of Fig. 1;

Fig. 6 is a view taken substantially on the line 6—6 of Fig. 1;

Fig. 7 is a disassembled perspective view of certain parts showing the manner in which they may be assembled.

Referring now to the drawings in detail and more particularly to Fig. 1, the numeral 10 indicates the usual gas burner such as used in a gas stove, which comprises a substantial cylindrical body provided with concentric rows of burner holes or jets 11, constituting the main burner unit. To one side extends a tubular portion 12 having at its end the air inlet control ports 13 and a regulator cock 14. This latter is of standard construction except for the provision of an added cut-away portion 15, shown more clearly in Figs. 2 and 3.

With reference to Figs. 2 and 3, it will be noticed that the port 15 is cut away thru the major portion of the transverse area of the cock or valve 14 so that when in closed position, Fig. 3, a relatively small quantity of gas is allowed to flow around the end portions 15a of the port and in the direction of the arrow; and when in open position to admit gas to the burner thru port 16 as shown in Figs. 1 and 2, the supply of gas passing thru the main port 15 to the pilot burner is immediately increased.

The central part of the burner, as shown in Fig. 1, is provided with a cylindrical block 20, preferably of brass and connected by means of pipe 21 with the pilot burner gas supply. This pipe 21, as shown in Fig. 4, passes in thru the main base 20 at an angle and terminates in a jet or nozzle 22 whereby the stream of gas impinges directly upon blades 23 of a rotary paddle wheel like member, mounted upon a stem 24. The lower part of this stem is provided with a pivot bearing 25, as shown in Fig. 1, seated in a cavity 26, thereby to provide a point of contact which will permit the shaft 24 to rotate freely.

The gas, after impinging upon the paddle

wheel, passes upwardly thru ports 27a disposed in a wall 27b, and into a chamber 27, thence thru holes 28 into a hollow bore 30 of the spindle 24. This spindle is mounted in a bearing member 31 enclosed within a cap 32 which with the flange 33 of the bearing member engages the opposite sides of the partition 34, closing the upper part of the chamber 27. Above the cap 32 is positioned a transverse member 35 provided with burner openings 36 at each end. These openings communicate with the openings 37 opening into the bore 30 of the spindle 24 as shown more clearly in Fig. 7.

To the top of the transverse burner element 35 is secured a cap 38 to hold the parts in assembled position, and this is in turn provided with a pivot point 40 engaging a coned or recessed member 41 adjustably mounted in the top of a guard member 42 completely surrounding and enclosing the burner member 35 except for the lateral ports 43 as shown more clearly in Fig. 6. The member 41, after it has been once adjusted, is locked in place by a lock nut 45.

At 44, there is indicated an adjustable screw passing thru the burner element 12 into the pilot burner supply pipe 21, whereby the flow of gas thru the pipe 21 may be regulated according to pressure in the city mains. That is, if the pressure is low, this set screw should be loosened in order to prevent accidental extinguishing of the gas normally passing out thru the burner openings 36.

While it is believed that the construction and operation of the present device will be clear from the above description, it may nevertheless be stated that, in operation, the cock 14 is normally in the position shown in Fig. 3, in which case only a small supply of gas passes thru the pipe 21, between the vanes of the wheel member 23, and out thru the openings 36 where it is initially ignited. Just as soon, however, as the cock 14 is turned to the extent shown in Fig. 2, admitting gas to the burner tips 11 in the usual manner, a much larger supply of pilot gas passes thru the pipe 21 and impinges upon the blades of the rotary member 23 causing the same to rotate and carry with it the burner member 35. Likewise, the small jet of flame projecting from this member 35 is greatly increased in size, and as it rotates over the burner elements 11, it insures the ignition of all of these individual jets in a reliable, quick and efficient manner. The burner element 35 continues to rotate as long as the gas is turned on, thus insuring the continued burning thereof regardless of strong drafts which might otherwise tend to blow out the gas, or boiling over of whatever happens to be cooking on the stove. As frequently occurs, a coffee pot will boil over and completely extinguish the main burner, thus allowing gas to flow into the room in dangerous quantities; but with the

present device such accidents are positively prevented, as the pilot burner continues to burn at full capacity, being protected by the hood 42, and ignites and burns any escaping gas from the openings 11 in the main burner.

The rotatable parts comprising wheel member 23, stem 24, cap 38 and pivot 40 are made of light weight metal, preferably of aluminum and will thus readily and easily operate in accordance with the above description.

The device is equally applicable to burners used in connection with hot water heaters, furnaces or ovens, where the burner may be oblong instead of circular. In some such instances, it might be desirable to eliminate the rotary paddle wheel 23, and instead use a stationary pilot arrangement having the gas by-pass feed as above described, and all such changes and modifications are included within the scope of my present invention.

From the above, it will be seen that the present invention comprehends a simple and practical device, well adapted to accomplish among others all of the objects and advantages herein set forth. The mechanism is safe, reliable and efficient, and further is not likely to get out of order due to accumulation of dust and dirt. Furthermore, dangerous accidents, due to the escape of gas from an extinguished burner, are positively eliminated.

Without further analysis the foregoing will so fully reveal the gist of this invention that others can by applying current knowledge readily adapt it for various applications without omitting certain features that, from the standpoint of the prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and therefore such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claims.

I claim:

1. In combination with a main gas burner of a stove or the like, a pilot burner centrally mounted with respect thereto, a cock for controlling the supply of gas to both the pilot burner and the main burner and adapted to increase the supply of gas to the pilot burner when the main burner is turned on, said pilot burner being rotatably mounted, and a vaned member carried by said pilot burner and disposed in the path of the inflowing gas to the pilot burner and responsive to the increased supply of gas thereto, whereby the pilot burner is rotated continuously when the main supply of gas is turned on.

2. In combination with a main gas burner of a stove or the like, a pilot burner centrally mounted with respect thereto, a cock for controlling the supply of gas to both the pilot burner and the main burner and adapted to increase the supply of gas to the pilot burner when the main burner is turned on, said pilot burner being rotatably mounted, a vaned member carried by said pilot burner disposed

in the path of the inflowing gas to the pilot burner and responsive to such increased supply of gas thereto, whereby the pilot burner is rotated when the main supply of gas is turned on, and a shield disposed about said pilot burner and having apertures thru which the pilot flame projects.

3. In combination with a burner, a pilot burner mounted for rotation in operative relation thereto, a supply line for said burners, a cock in the supply line, said cock being ported to admit a stream of gas to the pilot burner in closed position, and to admit an increased supply of gas to the pilot burner, and a main stream of gas to the burner when in open position, and means responsive to such increased supply of gas to rotate the pilot burner.

4. In combination with a gas burner, means actuable to supply gas thereto, a pilot burner, and means responsive to the actuation of said supply means to rotate the pilot burner.

5. In combination with a gas burner, means actuable to supply gas thereto, a pilot burner, said means normally supplying a limited quantity of gas to said pilot burner, said means operative upon actuation to supply an increased quantity of gas to said pilot burner, and means responsive to the actuation of said supply means to rotate the pilot burner.

6. In combination with a gas burner having a plurality of burner jets, a pilot burner centrally mounted with respect thereto, means to supply gas to the jets, and means to rotate said pilot burner, thereby to ignite all of the burner jets, said last-named means being responsive to the actuation of said supply means.

7. In combination with a gas burner, a pilot burner rotatably mounted with respect thereto, valve means actuable to supply gas to the gas burner and normally supplying a limited quantity of gas to the pilot burner, said means upon actuation being operative to increase the supply of gas to the pilot burner, and means responsive to such increased supply to rotate the pilot burner.

8. A pilot burner for use with a main gas burner comprising, in combination, a rotatable member, a burner element carried thereby, means for supplying gas at all times to said burner element, and means for increasing the supply of gas to the burner element when the main supply of gas is turned on, said member being responsive for its rotation to such increased supply, whereby the burner element is caused to rotate continuously when the main supply of gas is turned on.

In testimony whereof I affix my signature.
NUNZIO SCARPA.