A. O. RUTZ.

FLASH IGNITER.

APPLICATION FILED JUNE 12, 1919.

1,376,646. Patented May 3, 1921.

Fig. 1

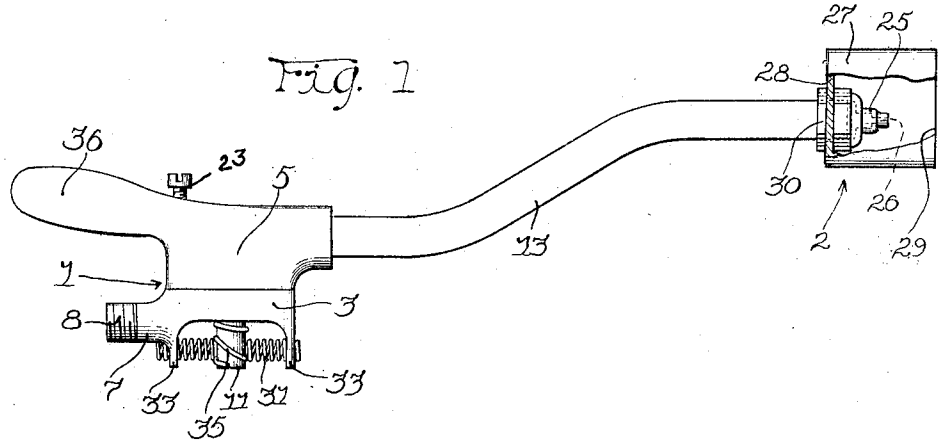


Fig. 2

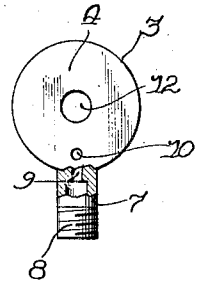


Fig. 3

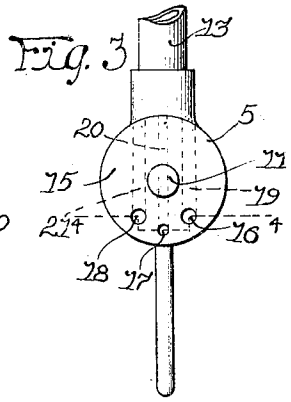


Fig. 4

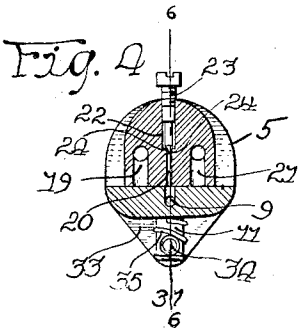


Fig. 6

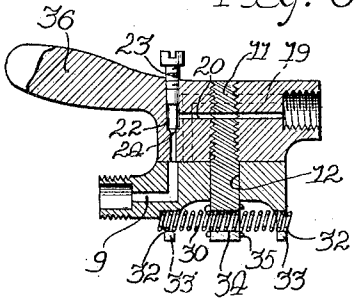
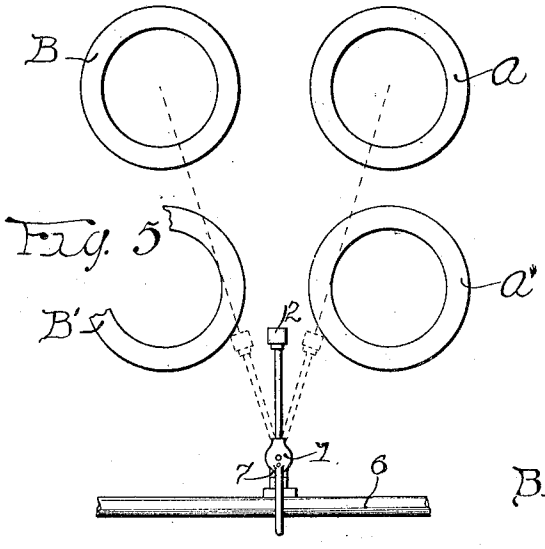


Fig. 5



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FLASH-IGNITER.

1,376,646. Specification of Letters Patent. Patented May 3, 1921.

Application filed June 12, 1919. Serial No. 303,741.

To all whom it may concern:

Be it known that I, ARNOLD O. RUTZ, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Flash-Igniters, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to flash igniters for gas burners and the like and more particularly to that type of igniters in which a single flame is employed for selectively igniting any one of a series of burners.

Igniters of this type are commonly employed as a means for lighting the burners of gas stoves and ranges and usually include a firing head for directing a thin jet of flame toward any of the several burners. A small pilot light is constantly maintained for the purpose of igniting the lighting flame. The flame is produced when desired by means of a valve which controls the supply of gas to the head and which also permits the necessary adjustment of the firing head to direct the flame toward the burner to be lighted.

One object of this invention is generally to improve and simplify the construction of igniters of this general type.

Another object is to provide in an igniter of the type referred to an efficient valve structure having a minimum number of parts which may be manufactured and assembled at a minimum cost.

Another object is to provide an igniter capable of manual adjustment to a firing position but which, when released, will automatically assume a neutral position.

Another object is to provide an igniter which will automatically produce a lighting flame when adjusted to a firing position, and which when released will automatically return to a neutral position and extinguish the flame.

Another object is to provide a novel and simplified means for shielding the pilot light.

Other objects and advantages will hereinafter appear.

One embodiment of the invention is illustrated in the accompanying drawings.

The figures of the drawings are as follows.

Figure 1 is a side elevation partly in section of an igniter made in accordance with this invention.

Fig. 2 is a top plan view partly in section of the lower member of the valve structure.

Fig. 3 is a bottom plan view of the upper portion of the valve structure.

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 3.

Fig. 5 is a diagrammatic view illustrating the disposition of the igniter with respect to the burners of a stove.

Fig. 6 is a vertical section taken on the line 6—6 of Fig. 4.

The igniter comprises in general a two part rotary valve structure 1 forming a pivotal support for a firing head 2. The stationary member 3 of the valve is preferably generally circular in form and is provided with a smooth bearing surface 4 forming a seat for the movable valve member 5. The stationary member may be rigidly connected with a fuel supply pipe 6 by means of a tubular extension 7 preferably screw threaded at 8 for connection with the supply pipe. A duct 9 leads through the extension and to a port 10 in the bearing surface 4.

The movable valve member 5 is pivotally connected with the stationary member 3 preferably by means of a post 11 secured to the movable member and rotatably journaled in a suitable opening 12 in the stationary member. A tube 13 mounted on the movable member is designed to carry the firing head 2 and to lead the fuel thereto. The movable member 5 is provided with a smooth surface 15 for wiping contact with the surface 4 of the stationary member. A plurality of ports 16, 17 and 18 in the surface 15 are each adapted for selective communication with the port 10 upon proper adjustment of the movable valve member about its pivotal axis. All of these ports communicate with the tube 13 by means of ducts 19, 20 and 21, respectively.

One of the ducts is designed to permit a restricted flow of fuel to the tube 13 and hence to the firing head for the purpose of maintaining a faintly burning pilot light. In the present instance the intermediate duct 20 with its corresponding port 17 has

been selected for this purpose. When the igniter is in its neutral position port 17 is in register with the port 10 so that the fuel passes from the supply pipe 6 through the extension 7, duct 9, ports 10 and 17, duct 20 and thence through tube 13 to the firing head (Figs. 4 and 6). It has been found advantageous to provide a means for adjusting the flow of gas through duct 20. This may be accomplished by the use of a needle valve of any approved type. In the present instance however, duct 20 is somewhat enlarged at one point to form a chamber 22 (Figs. 4 and 6), the admission of fuel to the chamber being controlled by a valve screw 23 having a pointed end 24 for coöperation with the entrance to the chamber.

Both the ducts 19 and 20 are designed to permit a considerable flow of fuel to the tube 13. Upon rotation of the movable valve member in either direction from its neutral position, either of the ports 16 or 18 may be made to register with port 10 of the fixed member. The fuel may thus be permitted to pass through either of the ducts 19 or 21 with the result that the supply of fuel to the tube 13 and firing head is materially increased.

The firing head 2 includes a burner or tip 25 having preferably a single longitudinal aperture 26 adapted to produce either a small pilot light or a long jet of flame depending upon the quantity of fuel delivered to the head. The tip may be screwed or otherwise secured on the free end of tube 13.

In order to protect the pilot light from dead gases emanating from the adjacent stove burners and from currents of air which might extinguish a faintly burning light the tip is preferably surrounded by a housing 27. The housing is preferably cylindrical in form having a closed supporting end 28 and an open end 29. The tube 13 extends through a suitable opening in the closed end 28. The housing may be fixed to the tube 13 by any convenient means such as a nut 20 adapted to clamp the closed end against the base of the tip 25. It will be noted from an inspection of Fig. 1 that the tip is positioned a greater distance from the top than from the bottom of the casing. The purpose of such an arrangement is to position the vertical pilot flame substantially centrally of the casing so that it will not engage the walls thereof and produce unpleasant odors. It will be further noted that the tip is positioned well within the open end of the casing so that the light is well protected from direct currents of air.

Various means may be provided for yieldably maintaining the movable member 5 in neutral position. In the present instance this means includes a spring 31 removably mounted in suitable bearings 32 in bracket ears 33 carried by the stationary valve member 3. The spring fits in a suitable opening 34 through the post 11 in such manner as to yieldably resist rotation of the post from a neutral position. A coil spring 35 mounted on the post retains the spring 31 against accidental longitudinal displacement and also presses against the bottom of the stationary valve member to draw the movable valve member toward the stationary member and thus maintain a tight joint therebetween. The movable member may be provided with a finger piece 36 for adjusting the member in either direction from its normal neutral position.

The operation of the device may now be briefly explained. Assume that the igniter is in its normal neutral position, as indicated in full lines in Fig. 5. In this position port 17 is in register with port 10 and a very limited amount of fuel is delivered to the tip 25 through the duct 20. Consequently a small pilot light is maintained. The size of this light may be adjusted by turning the valve screw 23. Should it be desired to light one of the stove burners A or A′ a slight pressure upon the finger piece 36 to the left will cause a rotation of the movable valve member 5 in a clockwise direction (Fig. 5) against the action of spring 31, thus directing the firing head 2 toward the burner. At the same time this rotation brings port 18 into register with port 10 so that a suddenly increased flow of fuel is delivered to the firing head through duct 21. This increased supply of fuel through the aperture 26 is sufficient to produce a long slender jet of flame for igniting the burner. As soon as the finger piece 26 is released the spring 31 returns the movable valve member to its normal neutral position and the flame is automatically again reduced to a mere pilot light. Should it be desired to light one of the other burners B or B′ the operation is substantially the same except that the finger piece 36 is pressed in the opposite direction and the increased flow of gas passes through the duct 19.

It has been found that the slight interruption to the flow of gas during the rotation of the movable valve member, to bring either port 16 or 18 into register with port 10, does not materially affect the continuity of the flame at tip 25.

Thus it will be seen that an exceedingly simple but efficient igniter has been provided which will automatically produce a lighting flame when adjusted to firing position and which when released will automatically readjust itself to neutral position and reduce the lighting flame to a small pilot light. The fixed and movable valve members may be in the form of simple castings suitably bored to form the several ducts therethrough. The valve parts are very easily assembled and

just as easily separated for purposes of cleaning or repair. To separate the parts it is only necessary to remove spring 35 and then spring 31. This will permit the lifting of the movable valve member from its seat on the fixed member.

Numerous changes may be made in the embodiment of the invention hereinabove specifically described without departing from or sacrificing the advantages of the invention as defined in the following claims.

I claim:

1. In a flash igniter for gas stoves having a plurality of burners and a fuel supply pipe therefor at one side thereof the combination of a stationary valve member for mounting adjacent the fuel supply pipe, a movable valve member, and a firing head carried by said movable member for movement toward one of the burners, said members having substantially flat contacting faces and fuel conducting passages through said faces for varying the supply of fuel to said head to produce a lighting flame by movement of said head toward a stove burner.

2. In a flash igniter for gas stoves and the like the combination of a stationary valve member for communication with a source of fuel supply, a movable valve member, a firing head communicating with and carried by said movable member for movement toward and from a stove burner, said members having opposed contacting faces, a plurality of ports in the face of one of said members, a single port in the face of the other of said members adapted to register with any of said plurality of ports to vary the supply of fuel to said firing head upon movement of said movable member whereby a lighting flame is produced by movement of said head toward a stove burner.

3. In a flash igniter for gas stoves and the like having a burner the combination of a firing head, a movable valve member supporting said firing head for movement toward and from the stove burner, a stationary valve member forming a seat for said movable member and having a hollow extension for connection with a source of fuel supply, a single fuel conducting passage in said fixed member communicating with said hollow extension and leading to said seat, a plurality of fuel conducting passages of varying capacities in said movable member communicating with said head each adapted to be selectively brought into communication with said single passage upon movement of said movable member whereby a lighting flame is produced by movement of said head toward a stove burner.

4. In an igniter for gas stove burners the combination of a fixed member for mounting on a gas stove, an oscillating member associated with said fixed member, an inwardly directed firing head connected and movable with said oscillating member from a neutral position toward a stove burner, means associated with said members for producing a pilot flame when said head is in neutral position and for producing a lighting flame when said head is moved toward a burner, and resilient means for returning said head to neutral position after the burner has been lighted.

5. In an igniter for gas stove burners the combination of a fixed member for mounting on a gas stove, a movable member associated with said fixed member, an inwardly directed firing head connected and movable with said movable member from a neutral position toward a stove burner, means associated with said members for producing a pilot flame when said head is in neutral position and for producing a lighting flame when said head is moved toward a stove burner, resilient means for yieldably retaining said parts in said neutral position, and an operating handle directly on said movable member for moving said head to lighting position.

6. An igniter for gas burners comprising a firing head having a tip with a single aperture therethrough a rotatable valve member supporting said firing head and having a fuel passage therethrough communicating with said aperture, a second fuel passage through said member communicable with said aperture to produce a lighting flame, a fixed valve member having a single passage therethrough communicating with a source of fuel supply, resilient means for yieldably maintaining said head in neutral position with said first named passage in communication with said last named passage, and means for moving said head to firing position and simultaneously effecting communication between said second named passage and said last named passage to produce a lighting flame.

7. In an igniter for gas stove burners the combination of a fixed member for mounting at one side of the stove, a movable member supported by said fixed member, an inwardly directed firing head connected and movable with said movable member from a neutral position toward a stove burner, said head including an apertured tip and a shield inclosing said tip, said shield being closed on all sides except the side opposite said aperture, and means associated with said members for producing a pilot flame when said head is in neutral position and for producing a lighting flame when moved toward a stove burner.

8. In an igniter for gas stove burners the combination of a fixed member for mounting at one side of the stove, a movable member supported by said fixed member, an inwardly directed firing head connected and movable with said movable member from a

neutral position toward a stove burner, said head including an apertured tip and a horizontally disposed cylindrical shield inclosing said tip, said shield being mounted eccentrically of said tip and being closed on all sides except the side opposite said aperture, and means associated with said members for producing a pilot flame when said head is in neutral position and for producing a lighting flame when moved toward a stove burner.

In witness whereof, I hereunto subscribe my name this 6th day of June, 1919.

ARNOLD O. RUTZ.