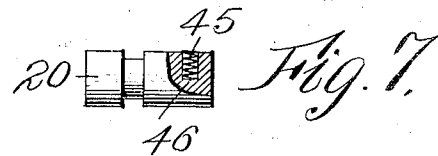
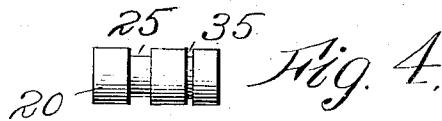
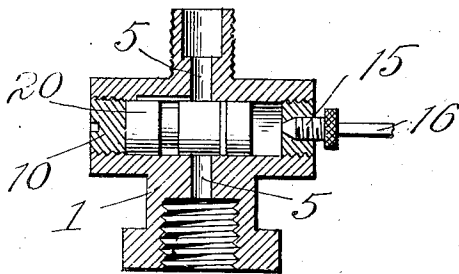
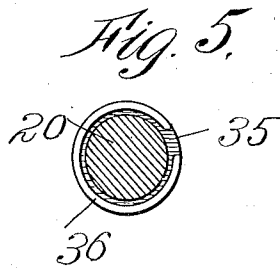
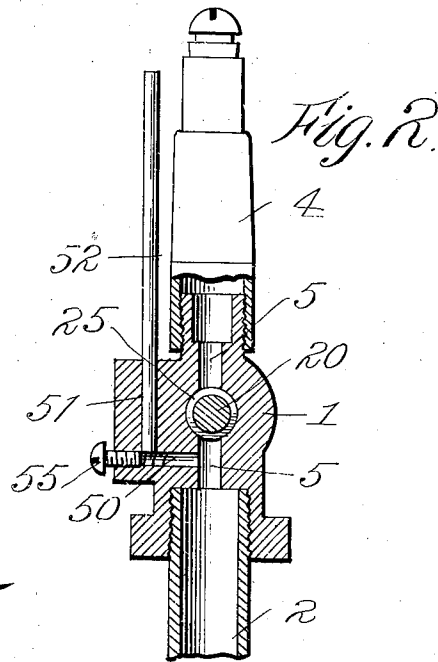
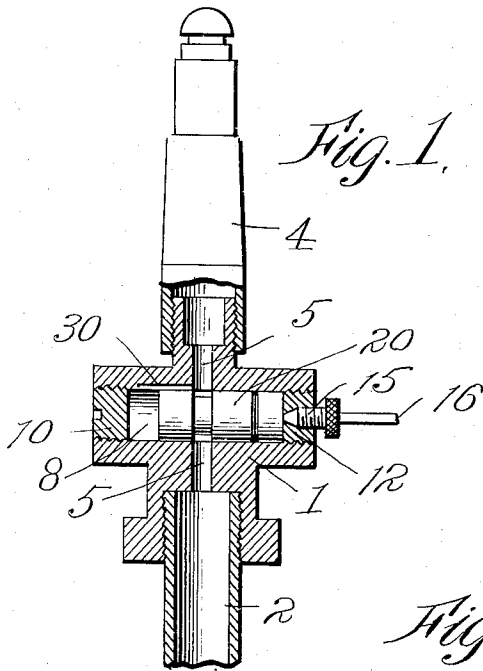


A. S. PLOWMAN.
GAS BURNER.
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1,059,001.

Patented Apr. 15, 1913.



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UNITED STATES PATENT OFFICE.

ARTHUR S. PLOWMAN, OF NEW YORK, N. Y.

GAS-BURNER.

1,059,991.

Specification of Letters Patent.

Patented Apr. 15, 1913.

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To all whom it may concern:

Be it known that I, ARTHUR S. PLOWMAN, a citizen of the United States, residing at New York, county and State of New York, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to gas burners in general and particularly to the kind wherein reciprocating pistons are used to control the gas conduits.

The object of the invention is to make a reciprocating piston, employed in this kind of gas burner, a positively controlled member incapable of being jarred, vibrated or shifted from the position it should maintain, except by the means intended to control said piston. This is accomplished by having a member freely attached to said piston in such manner that said member will engage the walls of the chamber, within which it moves, with sufficient friction to hold said piston in the position to which it is moved by its controlling means.

Gas burners of the kind herein disclosed, are now being used, but are unsatisfactory owing to the tendency of the piston to be jarred, shifted or accidentally dislodged from the position it should maintain.

It is to obviate this difficulty the present invention is made, said invention being hereinafter described as to detail and the points of merit and novelty set forth in the claims.

In the accompanying drawings: Figure 1 is a central vertical section showing the piston in position to permit the free flow of gas to the burner. Fig. 2 is a similar view taken at right angles to Fig. 1. Fig. 3 is a similar view to Fig. 1, with parts omitted, the piston in position to shut off the gas from the burner. Fig. 4 is a detail view, in elevation, of the piston. Fig. 5 is a cross section, on an enlarged scale, of the piston, through the recess holding the spring member. Figs. 6 and 7 show modified forms of the means, carried by the piston, for producing the necessary friction to hold said piston.

In the practical construction and operation of the invention, 1 is the casing or body of the burner, 2 the supply pipe threaded in the base thereof and 4 the ordinary burner screwed onto the top of the casing or body, and may be of the form shown or in the form of a mantle burner. Extending vertically through the casing is a hole 5, one

end of which opens into the supply pipe 2, the other end opening into the burner 4. Bored transversely through the casing or body, intersecting the hole 5, is a chamber 8. This chamber 8 is closed at one end, in a gas tight manner, by a plug 10 and at the other end by a similar plug 12. The plug 12 is adapted to have fastened thereto, in any suitable manner, a coupling 15 carrying a pipe 16 by means of which air is forced into and exhausted from said chamber 8. The means for supplying and exhausting air to and from said chamber 8 (not shown) may be of standard construction and is immaterial to the present invention. Contained within the chamber 8 is a piston 20, capable of being reciprocated by the action of the air controlling means. This piston is made to ride freely within the chamber 8 and open and close the main gas conduit in the manner to be described. Extending circumferentially around the piston is a groove 25 which registers with the opening 5 when the air is exhausted from the chamber 8 and the piston is drawn against the plug 12. In this position the opening 5 will be free so that the gas may pass around the groove 25 and thence to the burner, as shown in Fig. 2. When air is forced into the chamber 8 the piston 20 will be driven over against the block 10 and rest in the position shown in Fig. 3, that is, so that the piston will close the hole 5 and shut off the flow of gas. In order to permit the piston to move freely to the position shown in Fig. 3, I provide a vent hole 30 to relieve compression. To maintain the piston in the positions shown in Figs. 1 and 3 I preferably cut an annular recess 35 in the piston, and place within said recess a piece of wire 36, which is expanded to a diameter just a trifle larger than the piston diameter. Thus it will be seen, that when the piston moves there will be just enough friction between the walls of the chamber 8 and the wire 36, to hold said piston in the desired position and yet not enough friction to prevent the piston from being pneumatically controlled. The recess 35 is cut in the piston at a point where it will not be exposed to the vertical opening 5 through the casing. If desired, a piece of rubber, leather or other suitable material may be placed within the recess 35 in such a manner as to produce the necessary friction to hold said piston, in the same manner as will the wire 36. The ends of the wire 36 do not touch

thereby allowing said wire to freely expand and contract. The recess is also made sufficiently deep to allow the wire to freely compress therein. Within the casing 1, and projecting into the opening 5 below the piston 20, is an opening 50. Into this opening 50 projects a vertical opening 51 into which is fitted a pipe 52 for supplying the necessary gas to the pilot light.

55 is a set screw for regulating the flow of gas to the pilot light.

In Fig. 6 a modification is shown wherein the necessary friction for holding the piston may be obtained by fastening a leather, rubber, fiber or felt washer to one end thereof in any suitable manner, such as a screw, as shown at 40. In Fig. 7 another modification is shown wherein a spring 45 is contained within a radial opening 46, in such manner that the free end of said spring will bear against the walls of chamber 8, with enough friction to maintain the piston in the desired position. If desired the piston may be an electro-magnet and electrically instead of pneumatically controlled.

Claims.

1. In a gas burner provided with a piston chamber, a recessed piston reciprocating within said chamber, means for reciprocating said piston, and means contained within said recessed piston to frictionally engage the walls of said chamber and hold said piston in desired positions.

2. In a gas burner provided with a piston chamber, a recessed piston reciprocating within said chamber, means for pneumatically operating said piston, and means contained within said recessed piston to frictionally engage the walls of said chamber and hold said piston in desired positions.

3. A gas burner provided with a piston chamber, a reciprocating piston having an

annular recess therein, means for reciprocating said piston, and a spring member contained within said recess adapted to frictionally engage the walls of said piston chamber to hold said piston in desired positions.

4. In a gas burner provided with a piston chamber, a pneumatically operated piston reciprocating within said chamber and recessed in a manner to register with and open the main conduit, a yieldable member carried in a recess in said piston and adapted to engage the walls of the piston chamber, to hold said piston in desired positions.

5. In a gas burner provided with a piston chamber, a pneumatically operated piston reciprocating within said chamber and recessed in a manner to register with and open the main gas conduit, a split ring spring member contained within an annular recess in said piston and adapted to engage the walls of the piston chamber to hold said piston in desired positions.

6. In a pneumatic valve provided with a transverse bore and with a duct for gas leading to the bore, the combination of a piston movable within the bore to open and close the duct and a spring attached to the piston for holding the piston in any position given to it within the bore.

7. In a pneumatic valve provided with a transverse bore and with a duct for gas leading to the bore, the combination of a piston movable within the bore to open and close the duct and a friction member for holding the piston in any longitudinal position given to it within the bore.

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