(No Model.)

W. F. FOLMER.

GAS BURNER.

No. 419,652. Patented Jan. 21, 1890.

Fig.1.

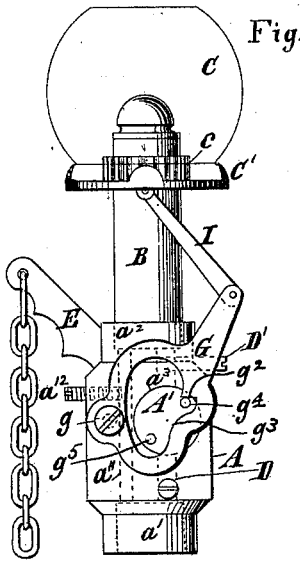


Fig.3.

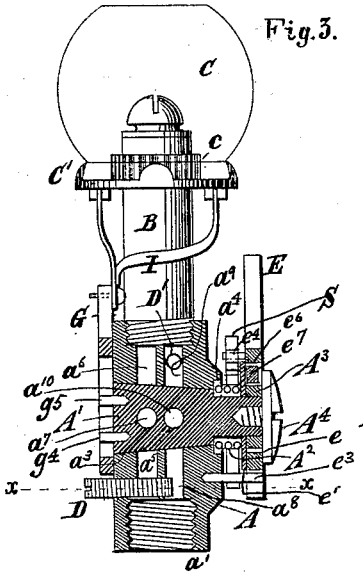


Fig5.

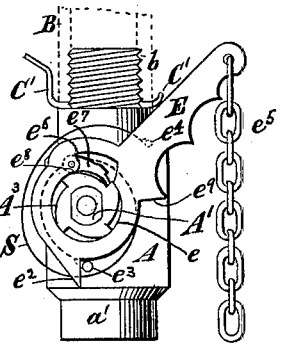


Fig.2.

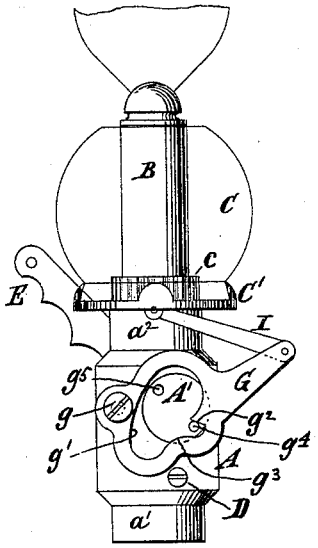


Fig.4

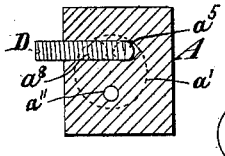


Fig.6.

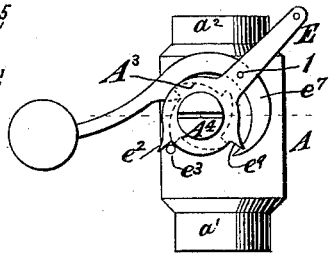
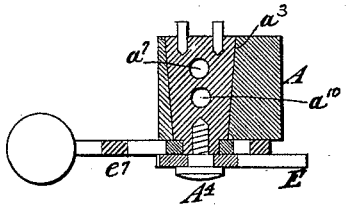


Fig.7.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM F. FOLMER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO WALTER E. SCHWING, OF SAME PLACE.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 419,652, dated January 21, 1890.

Application filed May 29, 1889. Serial No. 312,524. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. FOLMER, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Gas-Burners, of which the following is a specification.

I will describe a gas-burner embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a side view of a gas-burner and appurtenances embodying my improvement. Fig. 2 is a similar view showing the parts in a different position. Fig. 3 is a sectional side elevation of the burner and appurtenances as seen in a plane at right angles to that of Figs. 1 and 2. Fig. 4 is a horizontal section of the same, taken at the plane of the dotted line $x\,x$, Fig. 3. Fig. 5 is a view of a burner-body, a ratchet on the plug of the burner, a lever, and a pawl carried by the lever and engaging with the ratchet. Fig. 6 is a side view of certain parts, illustrating a modification. Fig. 7 is a horizontal section of the parts shown in Fig. 6.

Similar letters of reference designate corresponding parts in all the figures.

I will refer first to the example of my improvement illustrated by Figs. 1 to 4, inclusive.

A designates the body of the burner. It may be of any desirable form. It is shown as having at the lower end an internally-screw-threaded socket a' and at the upper end an internally-screw-threaded socket a^2. The socket a' is for fitting a nipple on a gas-fixture. The socket a^2 receives a pillar B, which may be of any desired construction. To the pillar B is fitted a globe C, adapted to slide up and down along the pillar.

The body A is provided with a cavity a^3, made of conical form and extending horizontally through it and receiving a plug A′. This plug is intended to rotate and is made of conical form. Around the smaller end of the plug a spring A^2 is coiled. At one end this spring extends within a cavity a^4 in the side of the body A. The other end acts against a ratchet-wheel A^3, affixed to the small end of the plug A′. The spring therefore tends to pull the plug farther into its cavity in the body of the burner, and thereby preserve a tight joint, and also to hold the ratchet-wheel from inward movement. The ratchet-wheel may be secured to the plug by having a hole of polygonal or other form adapted to engage with a corresponding portion of the plug and be held in from outward movement on the plug by a screw A^4, entering a tapped hole in the small end of the plug and having a large head extending over the outer side of the ratchet-wheel.

In the body A is a port or duct a^5, extending upwardly from the socket a' to the cavity a^3, and, as here shown, in line with the axis of the plug A′. Above the cavity a^3 the body A is provided with a port or duct a^6, which corresponds to the port or duct a^5 and is in line therewith. The plug A′ has extending transversely through it a port a^7, which may be turned into line with the ports $a^5\,a^6$. The body of the burner has also a port a^8, which corresponds to the port a^5 and is behind it in the sense that it is nearer the small end of the plug, and above this port a^8 it has a port a^9 in line with the port a^8 and behind the port a^6. The plug has a port a^{10}, which is behind its port a^7 and parallel therewith. When the plug is rotated so that its port a^7 will be in line with the ports $a^5\,a^6$ of the body, the port a^{10} will be in line with the ports $a^8\,a^9$ of the body. Gas may then flow through two continuous passages from the gas-fixture to the pillar B of the burner. These double ports which I have just described afford a free flow of gas, even if made comparatively small in diameter. It is more advantageous to have double ports of this character than to have single ports of larger diameter, because a shorter rotary movement of the plug will suffice for turning the gas full on and entirely off.

D designates a regulating-screw extending into a tapped hole in the body of the burner. This tapped hole extends parallel with the axis of the plug and it intersects the ports a^5 and a^8 of the body. It may be adjusted so as to leave the ports $a^5\,a^8$ entirely unobstructed, or to cut off entirely the port a^5 and project into the port a^8, so as to more or less obstruct the latter. Thus a single screw is utilized for adjusting both ports.

In addition to the regulating-screw D, there may be a regulating-screw D′ intersecting the port a^9, through which the main supply of gas passes to the burner.

Thus far I have only explained the means

which provide for the main supply of gas, or, in other words, the supply of gas for illuminating purposes. I also provide means whereby a torch-light or small flame may be burned when the plug closes the ports through which the main supply passes.

a^{11} is a port extending from the socket a' of the body A′ upward through the body to its socket a^2. This is of such dimensions as to allow but a small supply of gas to pass through it to the pillar B. A screw a^{12}, working in a tapped hole in the body of the burner, may be adjusted to more or less obstruct the port a^{11} to regulate the supply of gas afforded by it. It will be seen that the cavity a^3, which accommodates the plug, is arranged so that its center will be off to one side of the center of the body. This arrangement affords space for the port a^{11} directly through the body within the line of the sockets a' a^2.

E designates a lever, which may advantageously be made of sheet metal, having a circular opening e, of a size to fit upon the tips of the teeth of the ratchet-wheel A^3. This lever may swing or oscillate by turning around the ratchet-wheel. A washer e' surrounds the small end of the plug A′ behind the ratchet-wheel and the lever E. The spring A^2 impinges against this washer. The head of the screw A^4 is large enough to bear against the outer side of the lever E. The ratchet-wheel and lever are therefore held between the washer e' on the one side and the head of the screw A^4 on the other side. The head of this screw conceals the circular hole e in the lever. The lever has a spur e^2, which is adapted to coact with a pin e^3, projecting from the burner-body, to limit the swing of the lever in one direction. The lever is moved in this direction by a spring S, here shown as of volute form, connected at one end to the pin e^3 and at the other end to a pin e^4, affixed to the lever E. The lever is swung in the reverse direction by manual force. This may be conveniently applied through a cord or chain e^5, attached to the outer end of the lever and hanging therefrom.

From the opening e of the lever an arc-shaped opening or notch e^6 extends. In this opening is a pawl e^7, which is pivotally connected with a lug e^8, forming part of the lever and engaging with the teeth of the ratchet-wheel. Preferably the lever will be thicker than the pawl. When this is the case, the lug may be bent forwardly or outwardly to a very slight degree, to enable the pawl to be accommodated within the opening or notch e^6. The pawl will preferably be provided with a transversely-extending lug, which will extend under one of the coils of the spring S, so that it will be caused to quickly engage with the ratchet. When the lever is oscillated in one direction by the spring, the pawl will play over the teeth of the ratchet-wheel. When the lever is oscillated by the chain e^5, the pawl will engage with one of the teeth of the ratchet-wheel and effect a partial rotation of the plug A′ of the burner. It will be observed that the ratchet-wheel has but four teeth. The downward movement of the lever, caused by a pull upon the chain e^5, is limited by a projection or spur e^9, formed upon the lever and coacting with the pin e^3. The lever, it will be seen, is capable of moving only about a quarter of a circle. It is intended that each pull of the chain e^5 shall effect a quarter-rotation of the plug. Owing to this the ports a^7 a^{10} of the plug will be by one pull of the chain moved into a vertical position and by the next pull of the chain moved into a horizontal position, so as to cut off the main supply of gas, and so on.

In Fig. 6 I have shown that the lever E may be hung upon the small end of the plug of the burner in rear of the ratchet-wheel and provided with a weighted pawl pivoted to it by a pin l as a substitute for the pawl which I have heretofore described actuated by the spring.

The globe C may be made of glass, mica, metal, or other suitable material. It is intended to protect the torch-light or small flame from currents of air. It is shown as supported in a globe-holder C′, which may be made of a perforated disk of sheet metal fastened to a corrugated sleeve c, fitting the pillar B, and adapted to be slid along the same. The globe-holder may have flanges or claws for embracing the lower edge of the globe. The globe is intended to be slid up, so as to encircle the tip of the burner while the torch-light or small flame is to be burned, and to be lowered below the tip while an illuminating-flame is desired. It is raised and lowered by means of a lever G and link I. The lever is oscillated through the plug of the burner, and the link is connected at one end to the globe-holder and at the other to the lever. It will be seen that the link is bifurcated, so as to connect with diametrically-opposite points of the globe-holder. One of the bifurcated arms is straight or substantially straight, so as to reach the lever G, the latter being at the back of the body of the burner.

The lever G is fulcrumed by a pin g to the body of the burner. It has an opening g', which is mainly of ellipsoidal form, although at one point it has a shoulder g^2 and at another point a projection or salient surface g^3. On the large end of the plug A′ are two pins or projections g^4 g^5. These extend through the opening g' and act one at a time upon the shoulder g^2 and the salient surface g^3. When either pin or projection g^4 g^5 contacts with the shoulder g^2, it will raise the lever G to its highest position. This will occur at every alternate downward swing of the lever E, and at such time as the downward swing of the lever E rotates the plug to move its ports out of line with the main supply-ports in the body of the burner. On each downward swing of the lever E, which brings the ports of the plug into line with the supply-ports in the body of the burner, one of said

pins will contact with the salient surface g^3 of the lever G and lower the lever. These movements of the lever G will effect the raising and the lowering of the globe C. I prefer to provide enough play or lost motion between the engaging of the said pins with the shoulder g^2 to allow the main gas-supply ports to be opened fully or entirely closed before a pin shall become disengaged from the said shoulder and contact with the salient surface g^3.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a gas-burner, the combination of a body and a plug, both having two sets of main supply-ports one behind the other in the direction of the axis of the plug, substantially as specified.

2. In a gas-burner, the combination, with a body and a plug, both having two sets of ports one behind the other in the direction of the axis of the plug, of a screw working in a tapped hole extending in the body transversely to the said two sets of ports and passing beyond one of the two sets of ports and reaching the other, and adapted to obstruct or wholly cut off the two ports, substantially as specified.

3. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever having a pawl engagement with the ratchet-wheel, a screw engaging with the plug and having a head bearing on the outer side of the ratchet-wheel, and a spring acting to force the ratchet-wheel outwardly against the head of the screw, substantially as specified.

4. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever surrounding the plug, a pawl on the lever engaging the ratchet-wheel, a screw engaging with the plug and having a head bearing on the outer side of the ratchet-wheel and lever, and a spring acting to force the ratchet-wheel and lever outwardly against the head of the screw, substantially as specified.

5. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever surrounding and supported by the ratchet-wheel, a pawl on the lever engaging the ratchet-wheel, a screw engaging with the plug and having a head bearing on the outer side of the ratchet-wheel and lever, and a spring acting to force the ratchet-wheel and lever outwardly against the head of the screw, substantially as specified.

6. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever surrounding the plug, a pawl on the lever engaging the ratchet-wheel, a screw engaging with the plug and having a head bearing on the outer side of the ratchet-wheel and lever, a washer behind the ratchet-wheel and lever, and a spring bearing against the washer, substantially as specified.

7. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever having a central opening fitting the teeth of the ratchet-wheel, and a notch extending from this opening, and a pawl located within the notch and pivoted to the lever, substantially as specified.

8. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever having a central opening fitting the teeth of the ratchet-wheel, a notch extending from this opening, and an offset lug at one end of the notch, and a pawl located within the notch and pivoted to the offset lug, substantially as specified.

9. In a gas-burner, the combination of a body, a rotary plug, a ratchet-wheel mounted on the plug, a lever surrounding the plug and having a pawl pivoted to it, and a volute spring connected to the body and to the lever and acting upon the pawl, substantially as specified.

10. In a gas-burner, the combination of a body and a rotary plug, the body having ports one behind the other in the direction of the axis of the plug, above and below the plug, the plug having ports which may be brought into line or out of line with the said ports of the body, and the body also having a small port passing through it from end to end to supply gas independently of the plug, substantially as specified.

11. In a gas-burner, the combination of a body, a rotary plug having a port extending diametrically through it, a ratchet-wheel mounted on the plug and having four teeth, a pawl, a lever carrying the pawl and having a swinging movement of approximately a quarter of a circle and operating the plug so that on one swing it will open the burner and at the next swing in the same direction close the burner, a globe or shade, and a holder for the globe or shade fitted to slide on the burner and elevated and lowered by the rotation of the plug, the globe or shade being elevated when the burner is closed and lowered when the burner is opened, substantially as specified.

12. The combination, with a gas-burner, of a rotary plug, a sliding holder for a globe or shade, a lever having an opening provided with a shoulder and a salient portion engaging with pins on the plug, and a link between the lever and the said holder, substantially as specified.

13. The combination, with a gas-burner, of a rotary plug, a sliding holder for a globe or shade, a lever connected to the holder and having an opening opposite the plug, and the plug having pins or projections operating in the opening of the lever, substantially as specified.

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Witnesses:
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