O. STRULLER.

GAS IGNITER.

APPLICATION FILED JULY 12, 1911.

1,039,612. Patented Sept. 24, 1912.

Fig. 1.

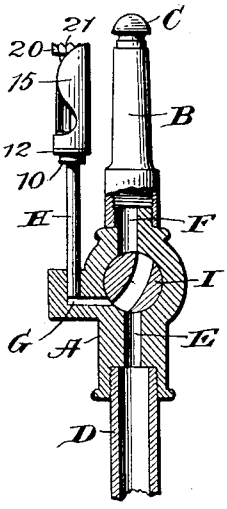


Fig. 2.

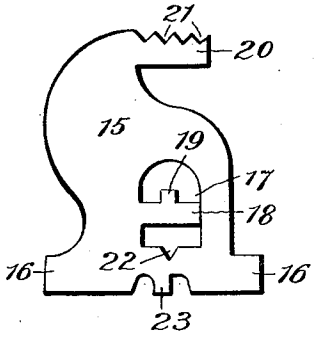


Fig. 3.

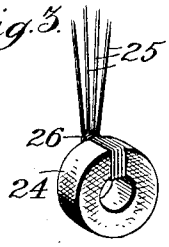


Fig. 4.

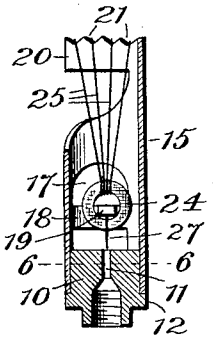


Fig. 5.

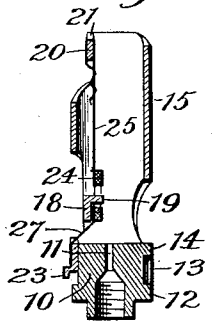


Fig. 6.

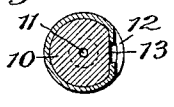


Fig. 7.

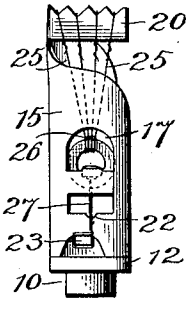
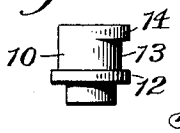


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

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GAS-IGNITER.

1,039,612. Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed July 12, 1911. Serial No. 638,112.

To all whom it may concern:

Be it known that I, OTTO STRULLER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Igniters, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to gas-igniters of the catalytic class, in which incandescence is caused in a portion of the device upon contact of gas therewith and the gas lighted, whereupon the flame will serve to light the gas in a burner proper. Igniters of this kind are shown, for example, in my United States Letters Patent No. 874,637, December 24, 1907, and No. 890,313, June 9, 1908.

It has been found, through continued experiment and use, that the platinum or other wires and the "pill" used in such devices to give, on contact of the gas with the pill, incandescence to the wires must be immovably held, without liability of displacement, in exactly the proper position.

One object of the invention is to provide means whereby an ignition-pill and the ignition-wires connected therewith are reliably held in proper position with respect to the jet of gas flowing through the igniter. It has been found in practice that the wires are gradually burned out by the flame in successive use of the device, unless the wires are held in a particular position, although the period of burning of the flame in the igniter at each ignition operation is but momentary, and that they should be held in a certain position to insure ignition of the gas. Therefore, the arrangement of this igniter is such that, while the pill is subject to proper contact with the gas, the pill and wires are kept in such position that they will not be as subject as heretofore to gradual consumption by the flame in the igniter.

Further, the invention contemplates such a formation of the device that the wires will not be subject to displacement by expansion and contraction of the parts on variation of temperature on lighting and extinguishing the flame therein.

The invention provides a holder, for maintaining the ignition pill and wires in the position described and for protecting them, which can be cheaply stamped out from sheet material, as brass, and formed into the required shape.

When read in connection with the description herein, the details of construction and arrangement of parts contemplated by the invention will be apparent from the accompanying drawing, forming part hereof, wherein an embodiment of the invention, as applied to an illuminating-burner, is disclosed, for purposes of illustration. It is to be understood, however, that the invention is susceptible of use with other kinds of burners, that changes in the form shown can be made without departing from the nature and spirit of the invention, and that the invention is not necessarily to be limited to the exact delineation herein in interpretation of claims hereinafter.

Like reference-characters refer to corresponding parts in the views of the drawing, of which—

Figure 1 is a view of the igniter as applied to a burner; Fig. 2 is a view of the holder as struck from sheet material and before being bent into the requisite form; Fig. 3 is a view illustrative of the manner of connecting the ignition-wires to an ignition-pill; Fig. 4 is a longitudinal sectional view, looking from the front; Fig. 5 is a longitudinal sectional view, looking from the side; Fig. 6 is a sectional view on the line 6—6, Fig. 4; Fig. 7 is a back view; Fig. 8 is a top view; and Fig. 9 is a side view of the nipple. Figs. 2 to 9, inclusive, are enlarged views, for the purpose of better disclosing the device.

Referring more particularly to the drawing, A designates the body of a burner, B the burner-tube, C the burner-tip, D the supply-pipe, E a channel leading therefrom, F a channel leading to the burner-tube, G a channel leading to a tube H extending from the body approximately parallel with the burner-tube, and I an angular-way valve in the body arranged to control passage of gas to tubes B and H.

On the free end of tube H is screwed or otherwise suitably secured a nipple member 10, having a comparatively small passage 11 extending therethrough from the tube H. The nipple is preferably cylindrical in shape, with an annular flange or projection 12 at its base and with a flattened lateral surface 13, in the formation of which a lateral projection or flange 14 is produced at or near the free end of the nipple and opposed to the annular flange.

A holder and protector proper for the ig-

nition pill and wires is formed of a body 15 struck flat from sheet material and then bent into the requisite shape, preferably cylindrical, the configuration being such that there are laterally-extending arms 16 at the nipple-engaging end and that when these arms are brought approximately end to end in bending the body into shape there shall be an opening in one side of the holder extending to the other or free end, yet leaving a sufficient material in the cylinder to form lateral protection for the pill and wires. The holder is secured to the nipple by having the arms 16 bent against the flat surface 13 and between the flange 12 and projection 14, the distance between the flange and projection being the same, or about the same, as the width of the arms, whereby the holder is firmly held on the nipple.

In stamping out the body there is also formed therein intermediate the ends an opening 17, across which extends at about right angles to the longitudinal line of the holder an arm 18 having a hook 19 on one edge which is bent to extend inwardly. The arm 18 is positioned to lie inwardly of the periphery of the body of the holder. An arm 20 extends laterally or transversely at the outer or free end of the holder, the material being bent so that this arm lies in the same plane with arm 18. The parts are so relatively formed and positioned that the plane in which the arms 18 and 20 lie is exactly parallel with the line of emission from the passage 11 of the nipple 10 and somewhat to one side thereof. The arm 20 is integrally formed with and bent sharply inwardly on the body of the holder, as shown in Fig. 8, in order to prevent movement of that arm relatively to the other parts under the influence of heat. It has been found in practice that when a decidedly curved bend is made in the positioning of this arm expansion and contraction of the parts under the influence of heat have a greater tendency to displacement. The arm 20 is formed in its outer edge with a series of notches 21. A V-shaped notch 22 is formed in the lower edge of the opening 17 exactly in alinement with the hook 19 of the arm 18, and a tongue 23 is formed in the edge of the body adjacent to the nipple, this tongue having a straight lateral edge which is exactly alined with the apex of the V-shaped notch 22. This tongue is bent outwardly and longitudinally to form a hook, as shown in Fig. 5.

An ignition-pill 24, of perforated disk shape and of any suitable composition which upon contact of gas therewith will become hot and cause incandescence in platinum or other wires connected therewith, is positioned on arm 18 with the hook 19 in its perforation. The hook 19 is shorter than the thickness of the pill, so as not to extend therebeyond and obstruct flow of gas through the igniter. The rear surface of the pill lies against the inner surface of the arm. A series of platinum or other suitable wires 25 are connected at a single point to the pill and led individually to and connected to arm 20, the wires diverging or spreading out from one another from the pill to the arm, and a single wire being disposed in each of the notches 21 of that arm.

While any suitable number of wires may be used, preferably two are employed, which two when doubled are led in four strands from the pill. The wires are connected to the pill by inserting a loop 26 thereof through the perforation of the pill so that the loop lies at the back of the pill, and the other ends of the wires are brought over the edge of the pill and drawn through this loop and tight against the surface of the pill, whereby the opposite surface of the perforation of the pill is held against the hook 19. Any suitable wire or wires 27 are similarly looped through the pill on the side opposite to the wires 25 and led through the notch 22 and around tongue 23 and connected thereto, thus drawing the pill against arm 18. The wires 27 are led first around the edge of the tongue which is in alinement with the apex of the notch, so that there shall be a straight pull on the pill in that direction from the hook 19 and through the notch 22, in order that the pull on the wires incident to expansion of the holder shall always be in a straight line between the arm 20 at one end and the tongue 23 at the other end of the holder, thus avoiding any lateral displacement of the pill and wires. The inner surfaces of the arms 18 and 20 lying in a plane parallel with and somewhat removed from the line of emission from passage 11, as already explained, it will be seen that the wires led from the surface of the pill against the inner surface of arm 18 and over the inner surface of arm 20 will also lie in a plane parallel with the line of emission. The arm 18 is sufficiently removed from the line of emission so that the outer surface of the pill thereon will also be slightly removed from that line. It has been found in practice that it is essential to reliable operation of a device of this character that the pill and wires shall have and be positively maintained in the position described. As the pill and wires are removed from the line of emission from the gas-passage, it follows that they lie outside of the main portion of the flame after the gas is lighted and in a position in which they are not so subject to being burnt out as when they lie across or in the flame.

The igniter is operated as follows: A valve of a burner with which it is associated is set so that gas is led to the tube supplying gas to the igniter. On contact of the

gas with the pill in the igniter, the wires 25 will become incandescent and ignite the gas. Thereupon, the valve is moved so that gas is also led to the burner-tube, whereupon gas emitted from the burner-tube will be ignited by the adjacent flame in the igniter. Thereupon, the valve is further moved to shut off gas from the igniter-supply tube and the flame extinguished in the igniter.

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

1. A gas-igniter comprising a holder having an arm formed with a hook and another arm formed with notches, a perforated ignition-pill positioned with said hook extending into its perforation, and a series of ignition-wires connected to said pill and individually led to said notches on said other arm.

2. A gas-igniter comprising a holder having an arm formed with a hook and another arm formed with notches, a perforated ignition-pill positioned with said hook extending into its perforation, a series of ignition-wires connected to one side of said pill and individually led to said notches on said other arm, and a wire led from the other side of said pill and connected to the holder.

3. In a gas-igniter, a nipple substantially cylindrical in shape, having an annular flange at its base, a flattened lateral surface, and a lateral projection opposed to said annular flange, in combination with a substantially cylindrical holder having arms thereon brought approximately end to end and seated against said flattened surface of the nipple between the flange and projection thereon.

4. A holder for the ignition pill and wires of a gas-igniter having at one end a wire-holding arm, an arm intermediate the ends of the holder having thereon a pill-engaging hook, said latter arm extending across an opening in the body of the holder, and there being a notch on the edge of said opening in alinement with said hook, and a tongue at the end of the holder opposite to said wire-holding arm having an edge in alinement with said pill-engaging hook and said notch.

5. A holder for the ignition pill and wires of a gas-igniter comprising a pill-holding arm having a portion shorter than the thickness of the pill and arranged to extend thereinto to hold the same, and another arm for connection with wires strung from said pill.

6. A gas-igniter comprising a member having a gas-passage therein, a holder on said member, an arm on the holder arranged to have ignition-wires connected thereto, and another arm on said holder having means thereon for engagement with an ignition-pill, both of said arms lying in a plane removed from and parallel to the line of emission from said gas-passage.

In testimony whereof I affix my signature in presence of two witnesses.

OTTO STRULLER.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."