

No. 847,412.

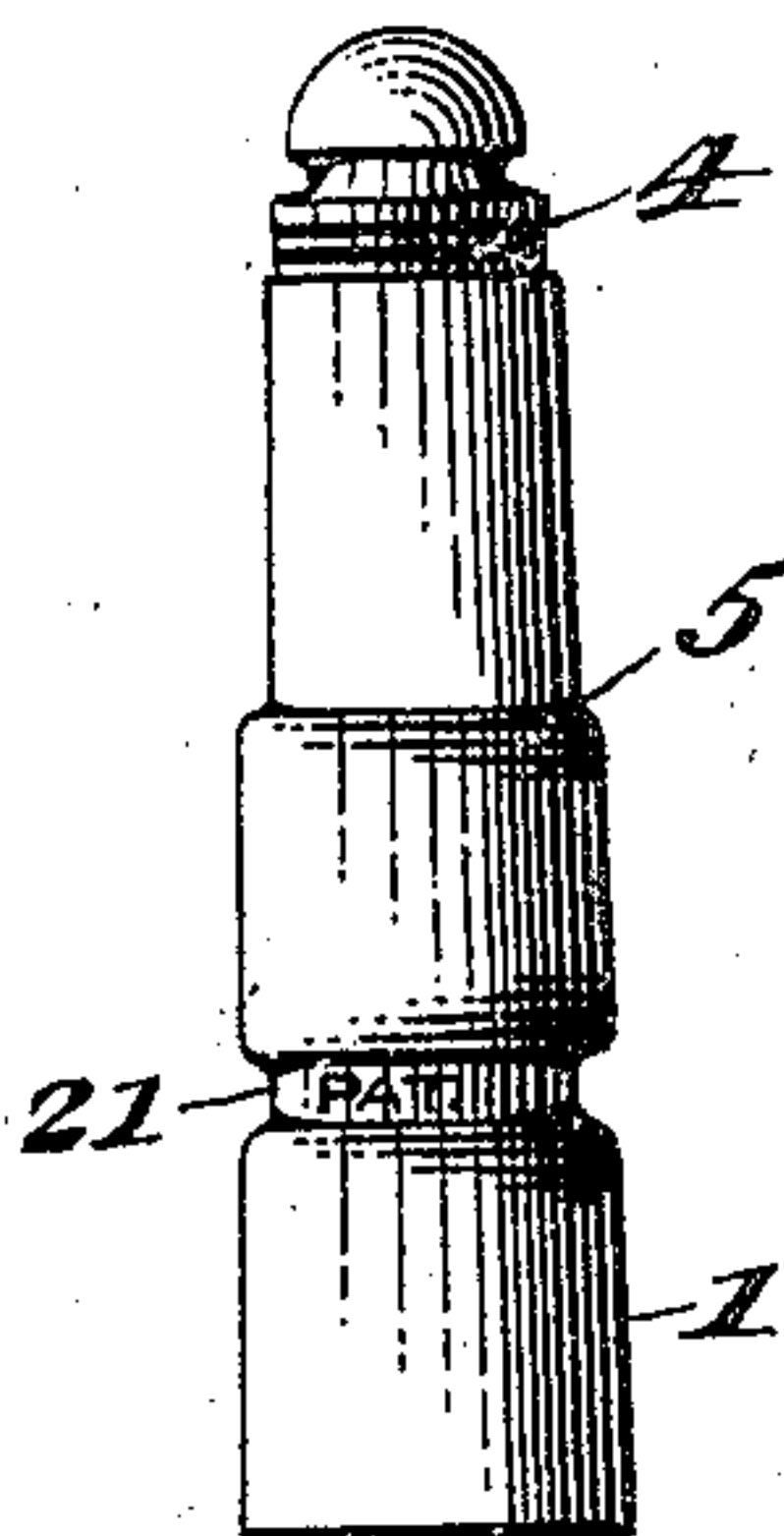
PATENTED MAR. 19, 1907.

P. KELLER.  
GAS BURNER.

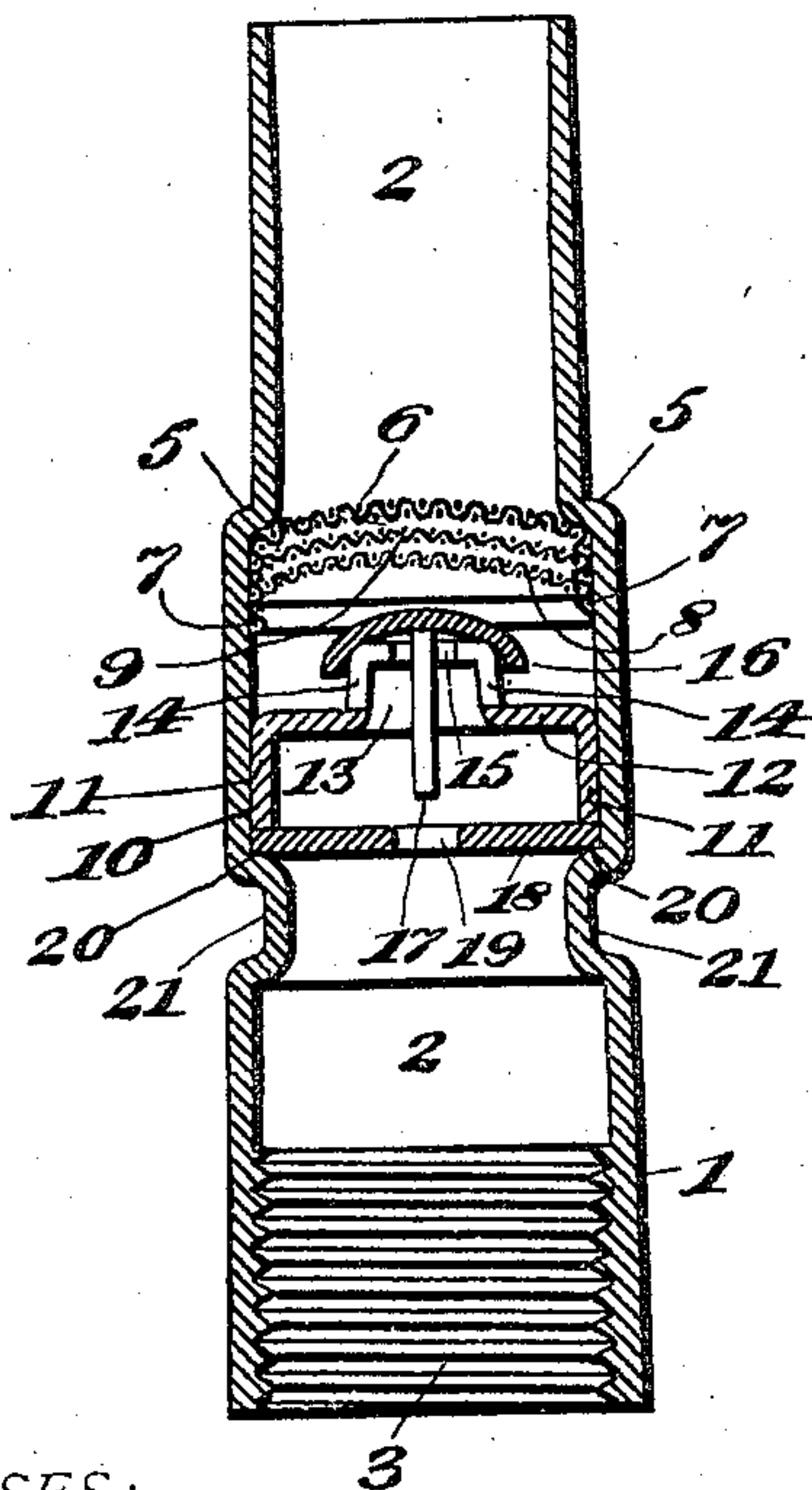
APPLICATION FILED APR. 4, 1906.

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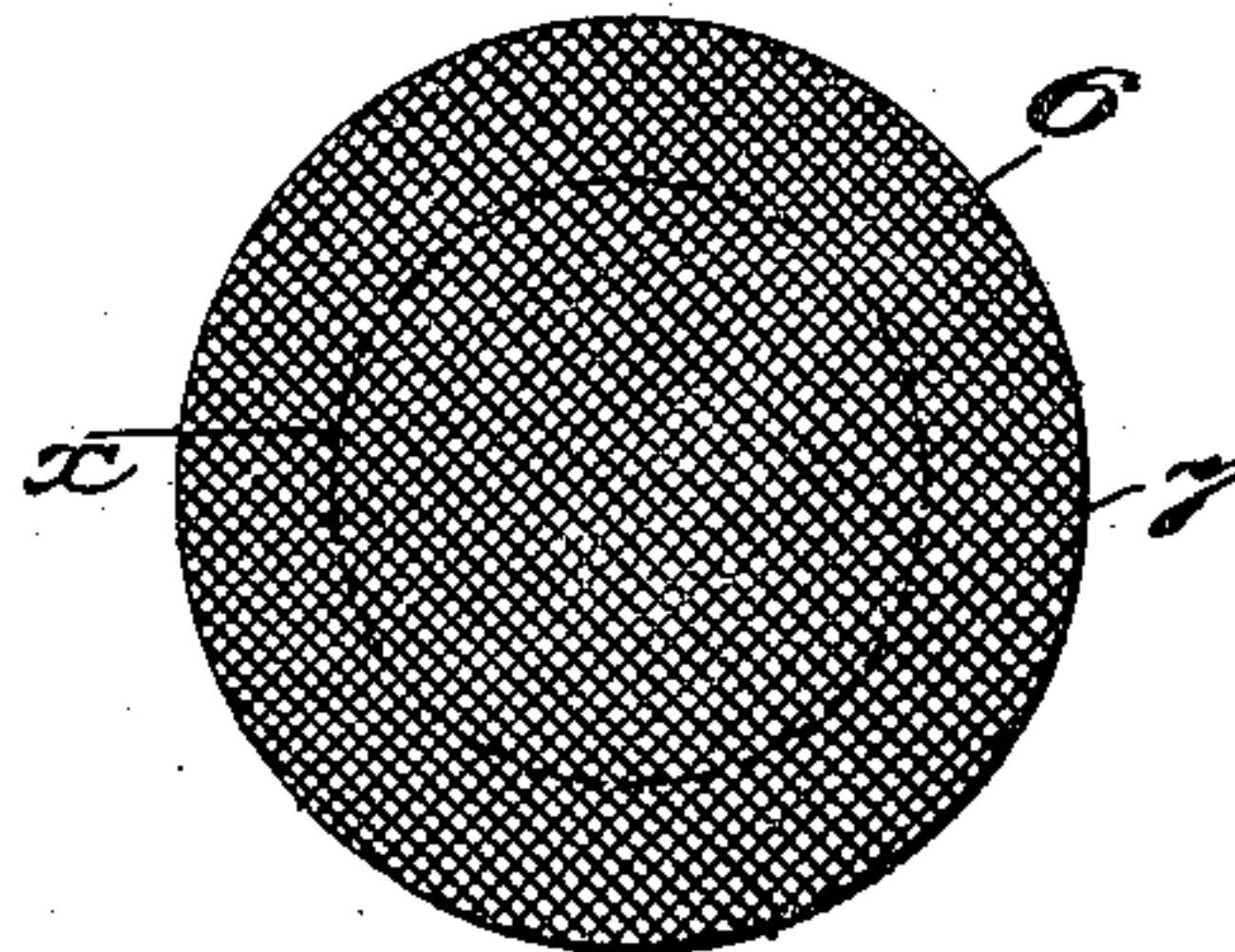
*Fig. 1*



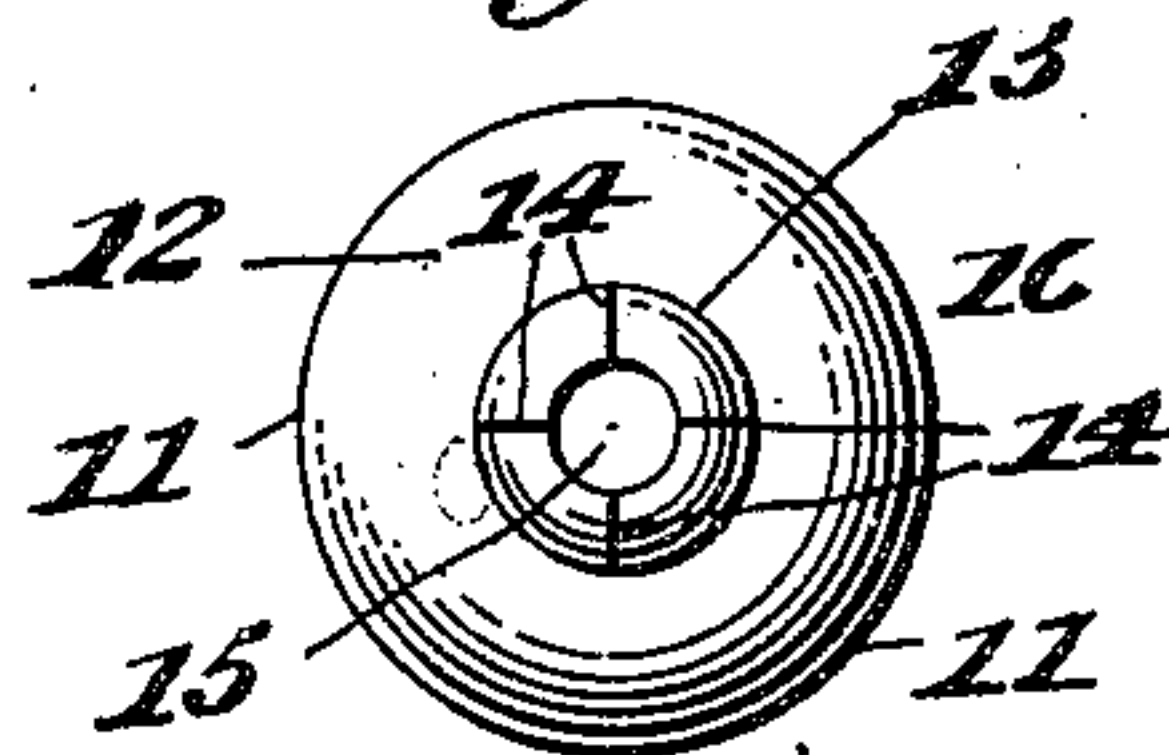
*Fig. 2*



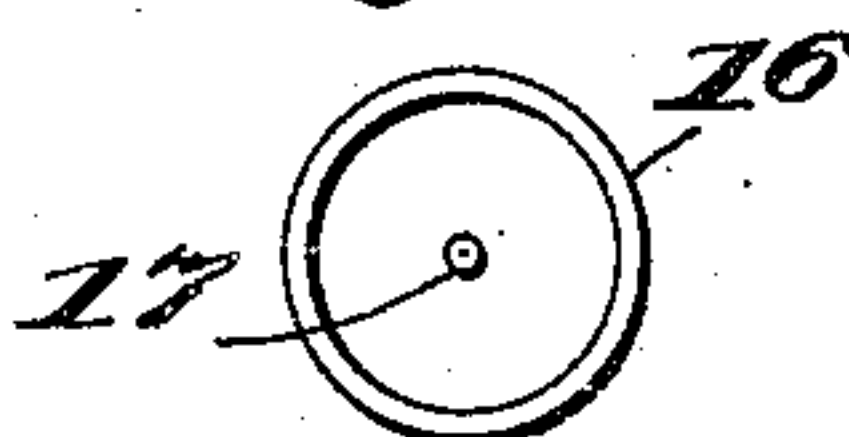
*Fig. 3*



*Fig. 4*



*Fig. 5*



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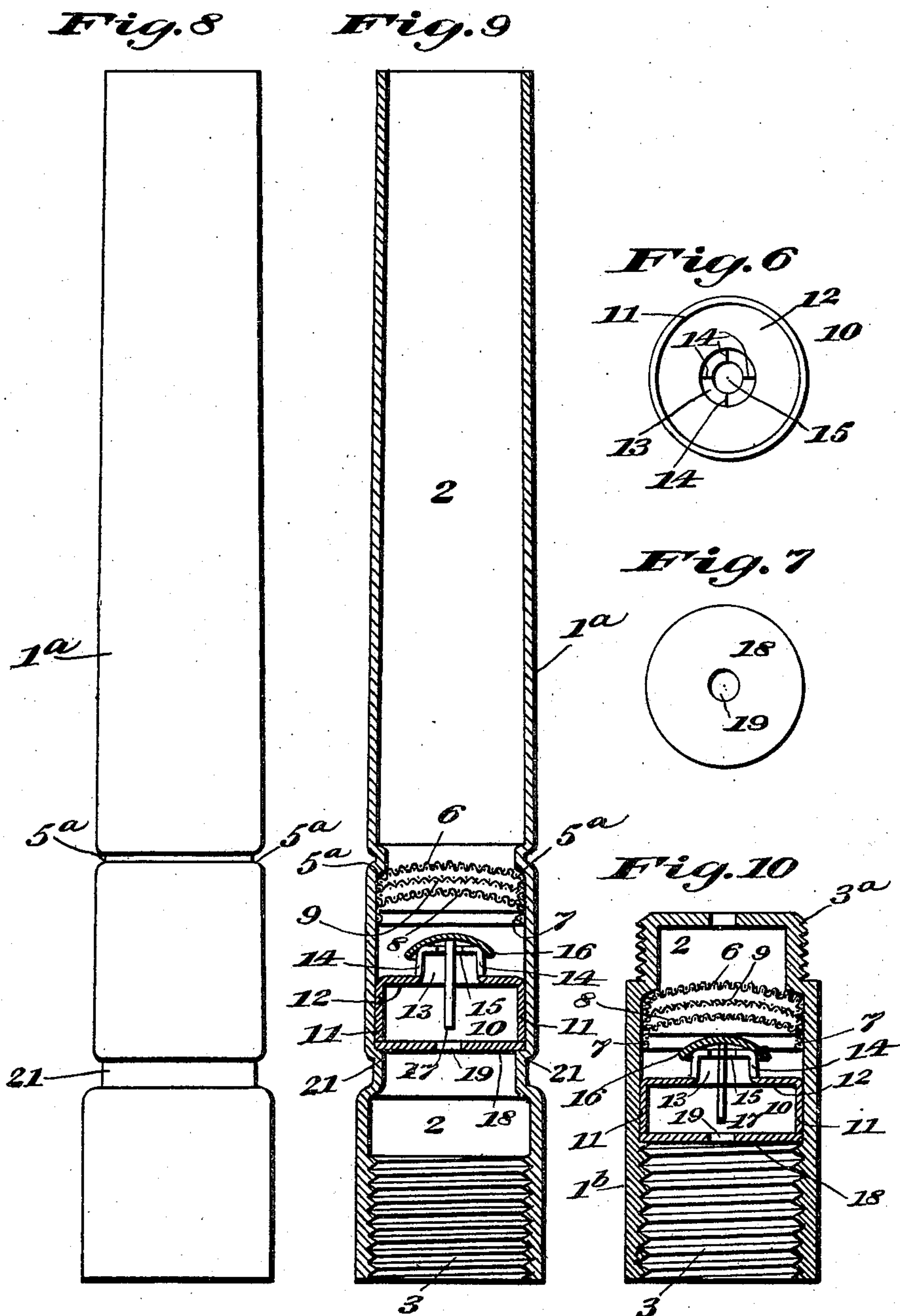
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# UNITED STATES PATENT OFFICE.

PETER KELLER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN M. TIERNEY, OF CHICAGO, ILLINOIS.

## GAS-BURNER.

No. 847,412.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed April 4, 1906. Serial No. 309,772.

*To all whom it may concern:*

Be it known that I, PETER KELLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois have invented certain Improvements in Gas-Burners, of which the following is a specification.

This invention relates to certain improvements in gas-burners, and has for its object to provide for use in such burners means for regulating and controlling the supply of gas to the burner-tip, whereby a more even and uniform flame is produced notwithstanding variations in gas-pressure at the service-pipe and whereby flickering of the flame at the tip is prevented when the gas-pressure is lowered.

The invention consists in certain novel features of the construction and combinations and arrangements of the several parts of the improved gas-burner, whereby certain important advantages are attained and the device is rendered simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate the invention, Figure 1 is a side elevation of an ordinary pillar-burner provided with my improvements. Fig. 2 is an axial section drawn to an enlarged scale and taken vertically through the improved burner for illustration of the internal construction thereof. Fig. 3 is a detail view showing detached one of the gauze screens of the improved burner. Fig. 4 is a view showing detached and in plan the regulating-shell housed within the pillar of the improved burner. Fig. 5 is an under side view of the valve for operation in conjunction with said regulator-shell. Fig. 6 is an under side view of the regulator-shell detached. Fig. 7 is a view of the gas-check at the base of the regulator-shell and also detached. Fig. 8 is a view showing a so-called "candle-burner" embodying my improvements. Fig. 9 is an axial section taken through the candle-burner and showing my improvements housed therein, and Fig. 10 is a view showing the application of my improvements within the base member of an ordinary mantle or incandescent gas-burner.

Referring first to Figs. 1 to 7, inclusive, 1 represents the tubular body portion of an ordinary pillar-burner, having a gas-passage 2 extended through it and having its lower end interiorly screw-threaded, as shown at 3, for connection with the gas-fixture at the end of the service-pipe, the upper end of said body portion being constructed to receive a lava or other gas-tip in a well-known way, as seen at 4 in Fig. 1.

Midway of its length the body portion 1 of the pillar has an annular inwardly-directed shoulder, as seen at 5, which serves for holding in position in the gas-passage 2 a multiple screen of novel construction, which is clearly shown in Fig. 2 and comprises a circular screen 6, of wire-gauze and of a diameter somewhat greater than the diameter of the gas-passage 2, across which it is extended. In preparing this screen for insertion in the body portion of the pillar an annular flange is provided around the marginal portion thereof, as shown at 7 in the drawing, being formed by pressing or bending downwardly the said edge portion 7 along the dotted line indicated at *x* in Fig. 3, so that a cup shape is imparted to said screen, its pendent edge flange 7 being adapted when the screen is pressed in position in the body portion 1 and against shoulder 5 to engage upon the walls of said body portion to effectively retain the screen in place.

8 indicates another circular screen, of fine wire-gauze, of less diameter than the screen 6 and having its edge portions engaged in the fabric of the pendent or flanged edge portions 7 of said larger screen 6, so that said last-named screen 8 may be inserted and held within the first-named screen 6 primarily to the introduction of said first-named screen within the body portion 1 of the burner. In this way the introduction of the two wire-gauze screens within the passage 2 is facilitated and a material economy in labor in assembling the parts is attained. 9 indicates a filtering-screen of cotton or asbestos gauze interposed between the wire-gauze screens 6 and 8 in the connection of these parts. The multiple screen thus formed from the wire-gauze screens 6 and 8 and the cotton or asbestos screen 9 is capable of being quickly and conveniently applied within the gas-passage 2 of the burner in such a way as to break



the force of the gas passing through the same and cause an effective distribution of the same through said passage, so that blowing or flickering at the tip is prevented. The wire-gauze screens serve to hold the cotton or asbestos gauze 9 securely in position, and by the employment of said cotton or asbestos gauze a greatly-improved result is attained in the use of the improved burner.

10 In the gas-passage 2 below the multiple screen is arranged a regulator member, (indicated as a whole at 10,) which serves to regulate and control the supply of gas through said passage and to equalize the pressure despite variations in gas-pressure in the main, and said member comprises a body portion formed or pressed up from thin sheet metal with a pendent edge flange or skirt 11 extended around it and adapted, when the device is pressed within the pillar, to tightly fit within the walls of the gas-passage 2 thereof.

12 represents the flattened disk-like top of the regulator shell or member, said top 12 being integral with said flange or skirt 11 and having a central elevated discharge portion or vent 13, raised above the top face of the member and provided with radial slitted vent-apertures 14, (herein shown as four in number,) which are extended from top to bottom of the portion 13.

The discharge or vent portion 13 of the shell or member is provided with a central gas-discharge opening 15 in its apex, and 16 represents a valve of disk-like form, which is adapted to close said opening 16 when in lowered position, but is adapted when elevated to permit the discharge of gas through opening 15 for supply to the burner-tip at the upper end of the pillar. Valve 16 has a central pendent stem 17 passed down through the opening 15 of the discharge portion 13 of the regulator shell or member and serving to guide the valve in its vertical movement. 18 is an annular or disk-like gas-check inserted in the passage 2 beneath the regulator shell or member 10 and provided with a central opening 19, adapted for the supply of gas to the interior of the shell or member, whence it escapes by way of openings 15 and 14.

For retaining the check 18 and member 10 in position in the passage 2 the walls of the pillar are inwardly crimped or swaged, as shown at 21, whereby an annular shoulder 20 is produced, whereon the check 18 rests at its edge portion. In the crimping or swaging of the pillar it is evident that any desired lettering or marking may be applied to the exterior of the pillar, as shown in Fig. 1, and in this way a material economy is effected in manufacture.

In the operation of the improved burner when the gas-pressure rises the resistance of the valve 16 will be opposed to prevent excessive escape of gas from the interior of the shell 10 by way of opening 15 and also to

lessen the area of the superposed multiple screen, which is left free for the flow of gas to the burner-tip, whereby the pressure at which the gas is supplied to the tip is materially reduced. When the gas-pressure falls, the valve 16 also falls by gravity, closing the opening 15, and while the valve is in lowered position gas may escape by way of the openings 14 in the sides of the raised vent or discharge portion 13 of the shell 10, so that the supply of gas will not be wholly cut off from the burner-tip. The employment of these slitted openings 14 in portion 13 also serve to prevent flickering of the light at the tip, which is very apt to occur where no such means are provided.

The improved burner is of an extremely simple and inexpensive nature and is especially well adapted for use by reason of the economy in the use of gas afforded by its employment and also by reason of the uniformity of illumination and freedom from flickering due to the improved construction, and it will also be evident from the above description that my improvements are not limited to employment in connection with pillar-burners alone, but may also be used in connection with other forms of gas-burners. For example, in Figs. 8 and 9 I have shown my improvements applied for use to what is commonly known as a "candle-burner," wherein the pillar or tube leading from the fixture to the tip and shown at 1<sup>a</sup> is substantially uniform in diameter throughout. In this form of burner the upper shoulder for engagement with the multiple screen is formed by an annular swage or crimp 5<sup>a</sup> produced around the burner-tube. The arrangement is otherwise similar to that above described. In Fig. 10 I have also shown my improvements applied for use to the base member 1<sup>b</sup> of an ordinary mantle or incandescent burner, the top of which has a screw-thread 3<sup>a</sup> for connection with the Bunsen tube of the burner.

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

1. A gas-burner having a gas-passage and provided with an annular inturned shoulder, a multiple screen extended across said passage and engaged with said shoulder, said screen comprising parallel wire-gauze screens of different diameter, the larger having a pendent edge flange engaged with the walls of the gas-passage and the smaller screen having edge portions engaged in the fabric of the pendent flange of the larger screen to hold the screens in relation and a fibrous packing interposed between said wire-gauze screens, a regulator-shell extended across the passage and having a central raised gas discharge or vent portion the apex of which has a central opening and the sides of which have slitted openings radiating from said central opening



ing, and a valve having guiding means and adapted to seat on the apex of said vent portion to control the flow of gas through the opening at the apex of said vent portion.

2. A gas-burner having a body portion provided with a gas-passage, a regulator-shell extended across the passage and having a central raised gas discharge or vent portion the apex of which has a central opening and  
10 the sides of which have slitted openings radiating from said central opening, a valve having guiding means and adapted to seat on the apex of said vent portion to control the flow of gas through the opening of the apex thereof, and a disk-like gas-check extended across  
15 the gas-passage below the regulator-shell and

having a central opening affording supply of gas to said shell, the wall of said gas-passage having an annular inwardly crimped or swaged portion forming an annular inturned  
20 shoulder below said disk-like gas-check and whereon the edge portions of the check are rested.

In testimony whereof I have hereunto signed my name, at Chicago, Illinois, this 1st  
25 day of March, 1906, in the presence of two subscribing witnesses.

PETER KELLER.

Witnesses:

J. D. CAPLINGER,  
C. B. STODDARD.