

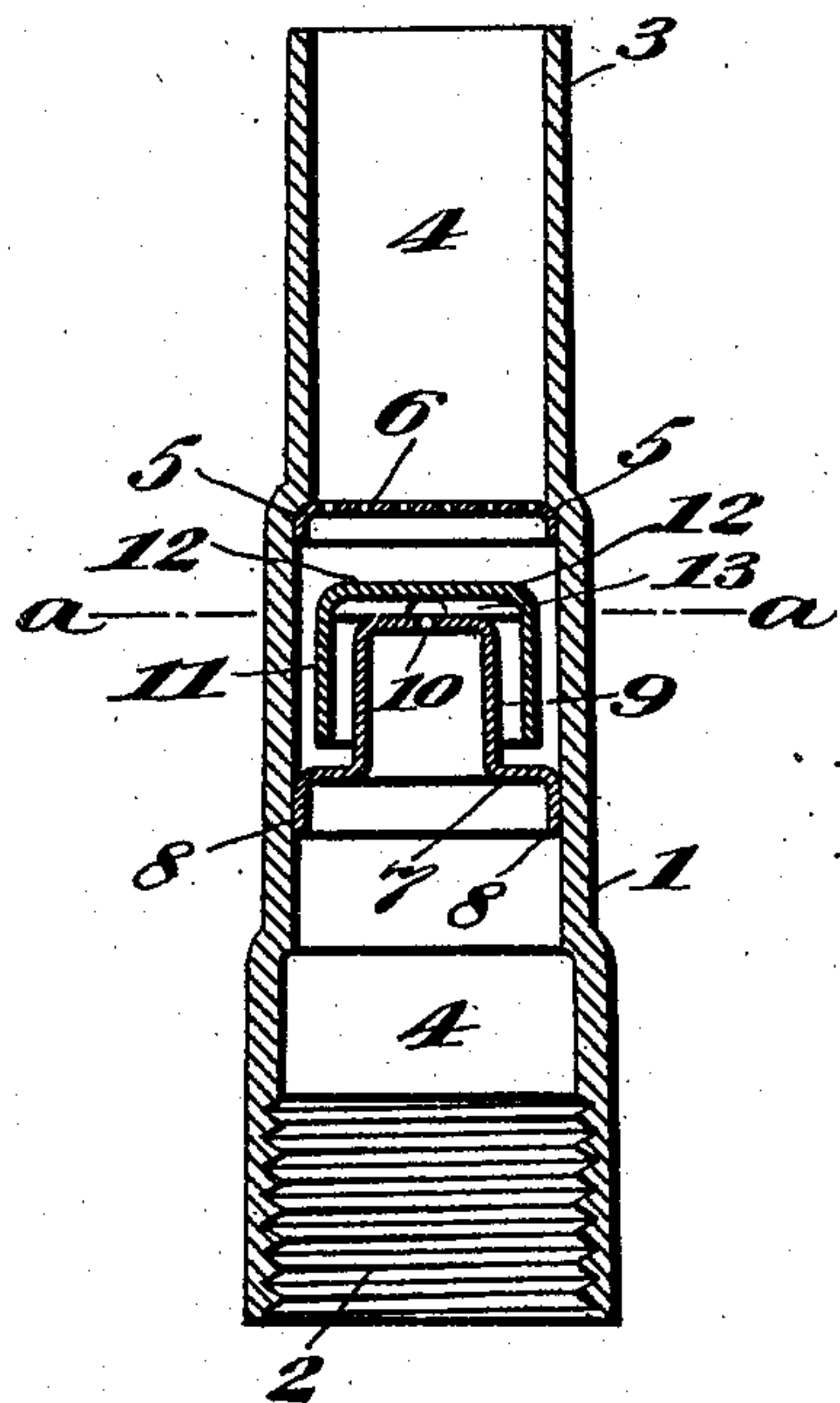
No. 815,536.

PATENTED MAR. 20, 1906.

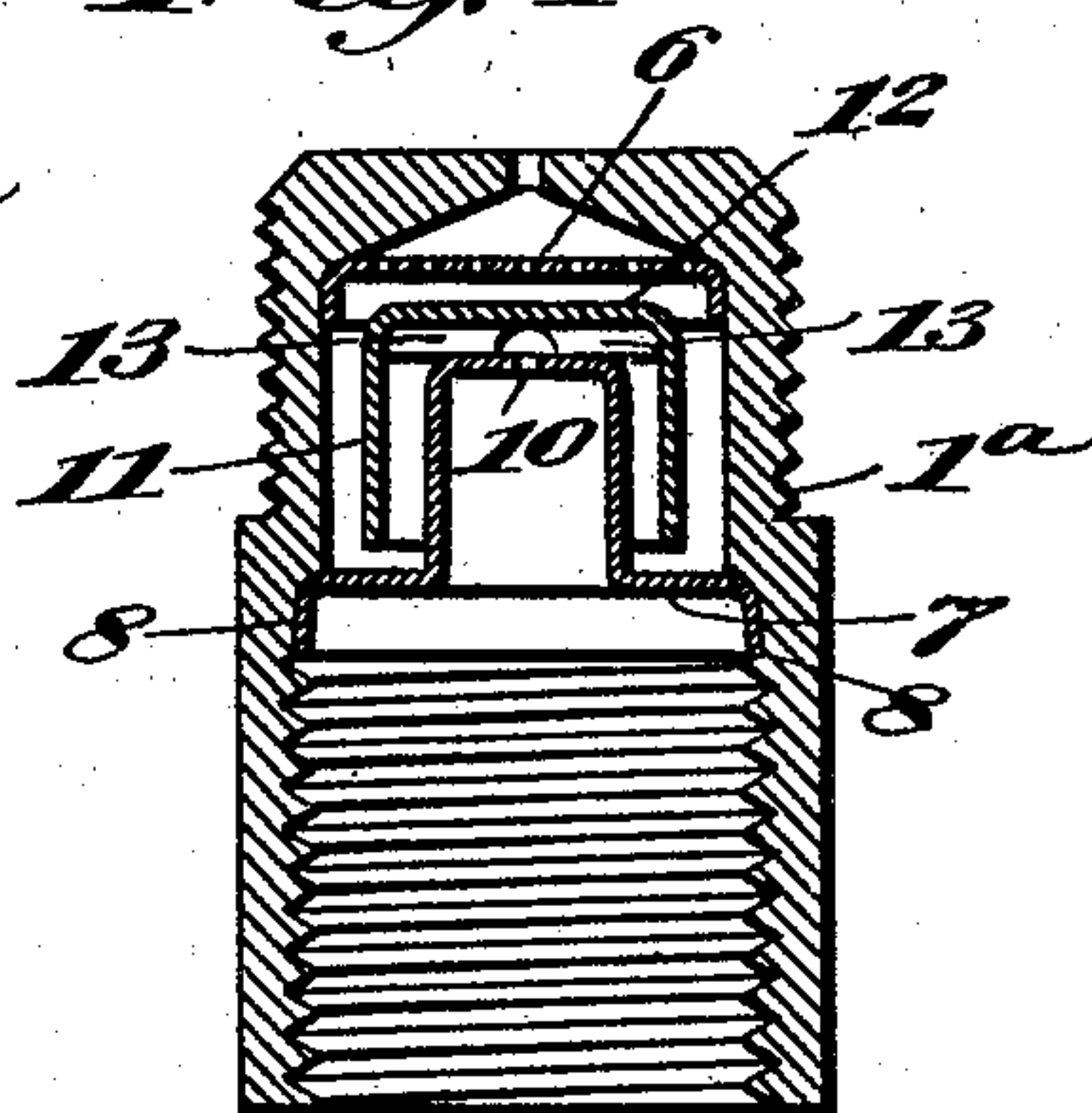
P. KELLER.  
GAS BURNER.

APPLICATION FILED JULY 20, 1905.

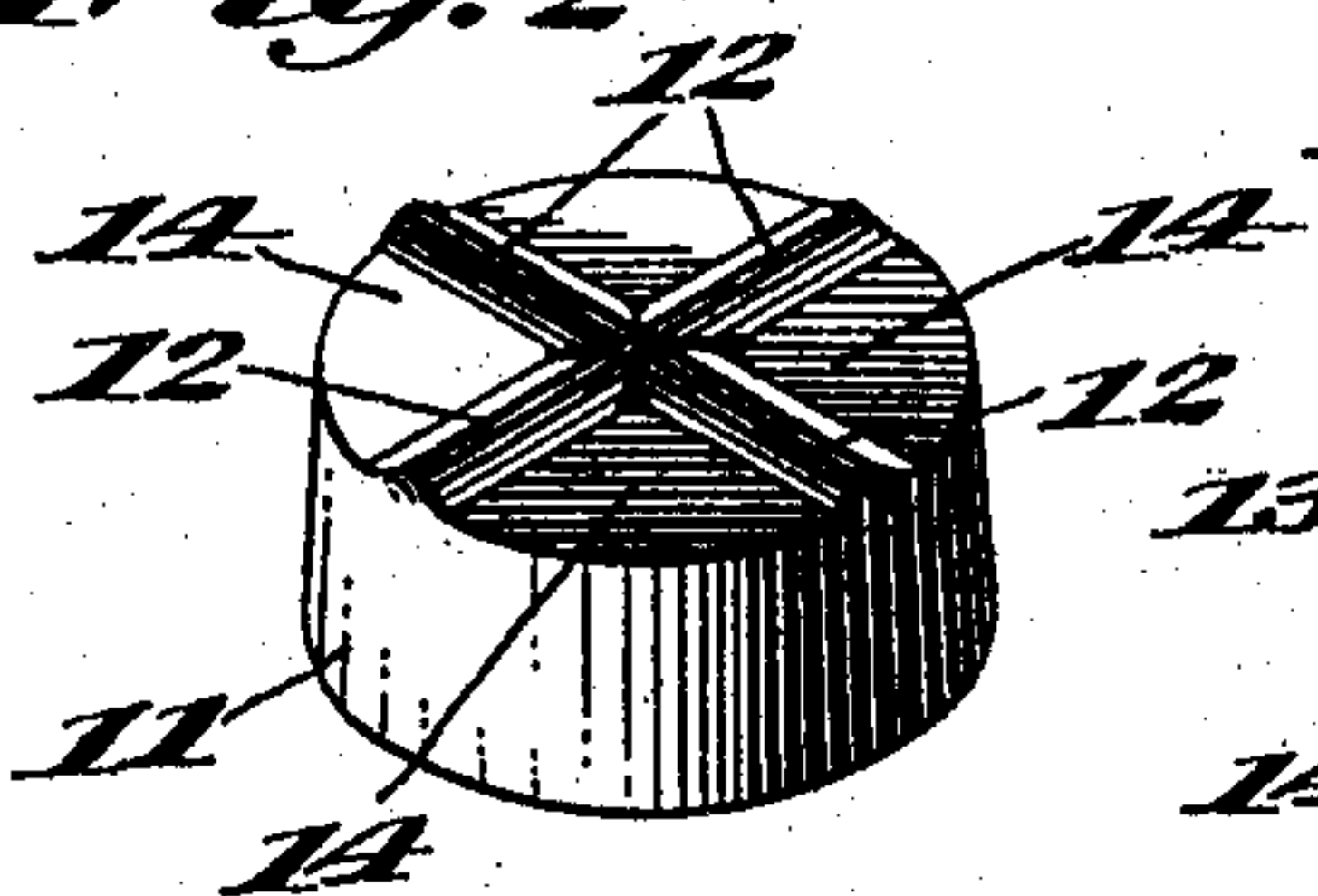
*Fig. 1*



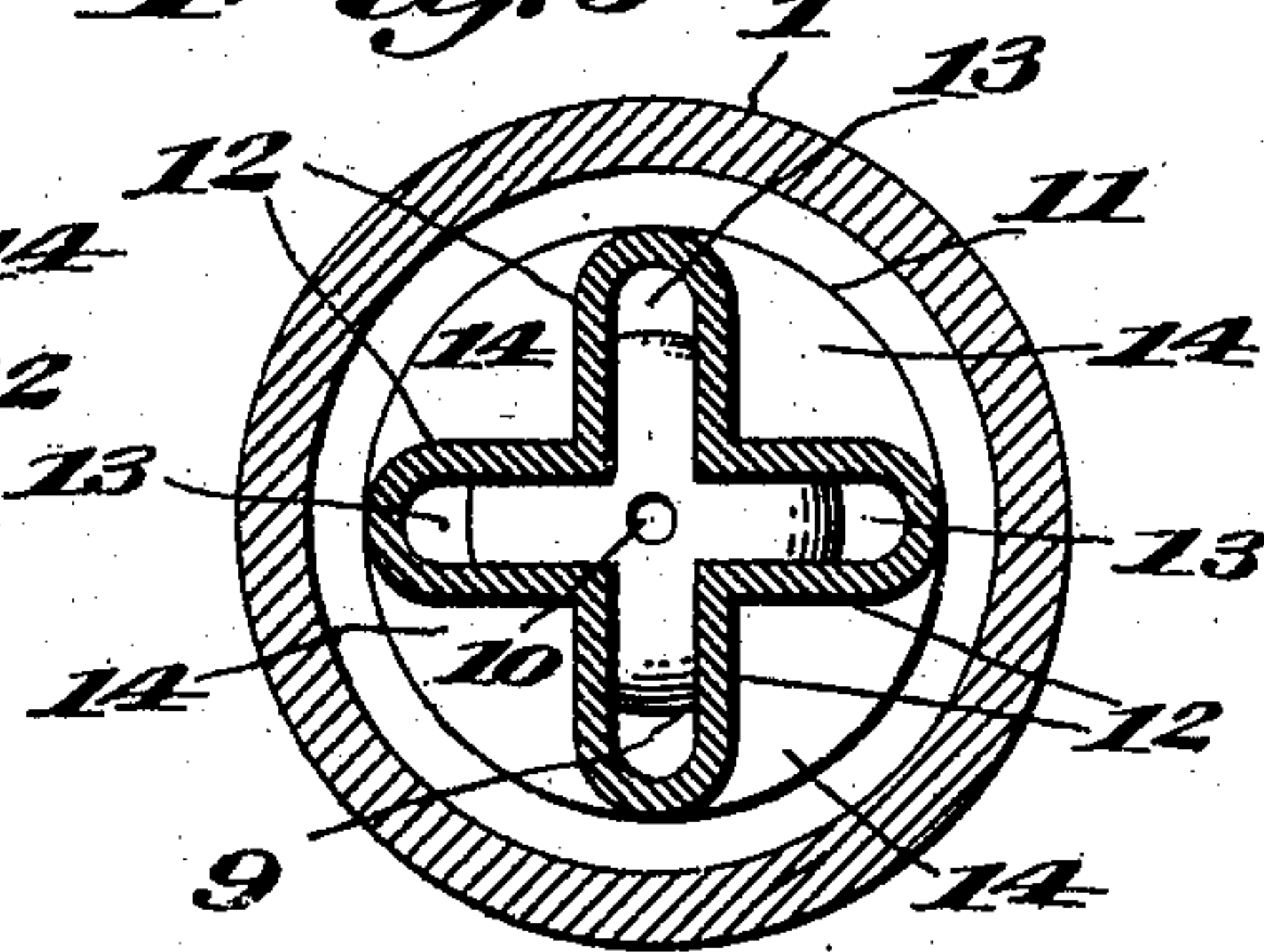
*Fig. 4*



*Fig. 2*



*Fig. 3*



**Witnesses**

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# UNITED STATES PATENT OFFICE.

PETER KELLER, OF CHICAGO, ILLINOIS.

## GAS-BURNER.

No. 815,536.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed July 20, 1905. Serial No. 270,482.

*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, combination, and arrangement 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 my invention, Figure 1 is an enlarged sectional view taken axially through the pillar of a gas-burner provided with my improvements. Fig. 2 is an enlarged perspective view showing the movable element or member of the controlling means detached from the burner. Fig. 3 is an enlarged sectional view taken horizontally through the pillar of the burner in the plane indicated by line *a a* in Fig. 1 and showing certain features of the inclosed controlling means, as will be hereinafter explained; and Fig. 4 is a view similar to Fig. 1, but showing the application of my improvements to the base-support of a Bunsen burner, such as is employed in lamps of the Welsbach and analogous types.

Referring first to Figs. 1, 2, and 3, 1 indicates the pillar of an ordinary gas-burner, having a threaded lower part 2 for connection with a bracket and having its upper end 3 adapted to receive the tapered lower end of a gas-tip in the ordinary way. 4 indicates the bore or hollowed gas-passage within the pillar, and 5 is a shoulder produced around

the wall of said passage and upon which is seated the downwardly-bent annular edge of a screen 6, formed, as herein shown, of perforated metal plate, although it may as well be produced, if desired, from metal gauze in a well-known way.

The controlling and regulating means are housed within the passage 4 beneath the screen 6 and comprise a lower member 7, having an annular pendent flange 8 around its outer lower part and adapted for snug engagement within the walls of the pillar, which are usually slightly tapered or coned, whereby it will be understood that by simply inserting said member 7 within the larger lower end of the gas-passage 4 and pressing it upward therein the exterior surfaces of the flange 8 may be tightly pressed within the walls of the pillar to hold said member securely in position during use of the burner.

The lower member 7 has an integral central nipple or seat 9 extended upwardly from its central part and of less diameter than the passage 4, whereby an annular space or chamber is produced within the pillar surrounding said reduced nipple or seat, and 10 indicates a gas-discharge port produced in the top of the nipple or seat 9, said top being flattened to produce a plane surface, as shown clearly in Fig. 1.

11 represents the upper movable member or element of the controlling or regulating means, and this member is constructed in the form of a cap or thimble with imperforate walls comprising a top portion and a pendent skirt or edge flange, the diameter of which is midway between the diameters of the nipple or seat 9 and of the passage 4 of the pillar, so that when the cap or member 11 is in position rested upon the nipple of the lower member 7 its pendent skirt or edge flange will depend around the sides of said nipple, being spaced away therefrom and also from the walls of the gas-passage of the pillar sufficiently to permit free flow of gas between the parts.

The length of the skirt or pendent edge flange of the cap or member 11 is such that its lower edge when the cap is in its lowermost position, as shown in Fig. 1, will be elevated above the horizontal outer part of the lower member 7 sufficiently to permit free and unobstructed flow of gas between the parts, so that even in that position of the



movable member of the device gas will be still supplied to the burner-tip.

The top portion or roof of the cap or member 11 is formed with intersecting corrugations or ridges pressed or otherwise produced in it, as indicated at 12 on the drawings, whereby the portions of the under surface of the cap or member beneath such corrugations are elevated out of contact with the flat top face of the nipple 9 when the cap is in lowered position, radial gas vents or passages 13 being thus produced from the opening 10 in the nipple and leading outwardly for communication with the annular space between the pendent skirt of the cap and the side walls of the nipple 9, so that in such position of the parts gas will still be supplied from opening 10 in the nipple through said vents or channels 13 to the space between the members 20 and may flow from said space beneath the under edge of said pendent skirt and upwardly in the gas-passage 4 around the cap or member 11 to continuously supply the flame at the tip.

By means of the elevated ridges or corrugations 12 in the top portion of the cap or member 11 of the device it will be seen that the remaining intervening portions of said top portion are caused to stand in a lower plane than the crests of said ridges or corrugations, as indicated at 14 in the drawings, and when the cap or member 11 is elevated above the nipple 9 by excessive pressure of the gas escaping at the opening 10 in the nipple the ridges or corrugations 12 will by contact with the under side of the screen 6 serve to hold the depressed portions 14 of the top of the cap or member 11 out of contact with said screen, so that a free flow of gas is afforded between said portions 14 and the under side of the screen, the gas so supplied escaping through the interstices of the screen and being supplied in a continuous manner to the burner-tip above.

From the above description of my improvements it will be seen that the improved gas-burner is especially well adapted for use, by reason of the fact that the flow of gas through the passage to the burner is effectively regulated and controlled at all times and at the same time, even when the gas is flowing at the extreme low or high pressure, the cap or movable member cannot seal either the opening 10 in nipple 9 or the interstices of the screen 6. In this way a remarkably steady and uniform flame is produced, and flickering, which has been a fault heretofore common in such devices, is altogether avoided.

It will also be obvious from the above description that the improved gas-burner constructed according to my invention is capable of considerable modification without ma-

terial departure from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the device as herein set forth in carrying out my invention in practice; nor do I wish to be understood as limiting the application of my improvements to pillar-burners alone, since it is obvious that the device may be applied to burners of all descriptions wherein it may be desirable to regulate or control the supply of gas to be burned. For example, in Fig. 4 I have shown the application of my improvements to the base connection of a Bunsen burner, such as is used in Welsbach and other similar incandescent gas-lamps. As herein shown, said member 1<sup>a</sup> has a hollow produced in it wherein the improved regulating and controlling means are located, the construction and arrangement being substantially similar to that above described.

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

1. In a device of the character described, the combination of a lower member having a central upwardly-extended nipple provided with a gas-discharge opening in its top and adapted for location in the gas-passage of a gas-burner or the like and a cap having a top portion and a pendent edge flange of greater diameter than said nipple, the top portion of the cap being adapted to rest on the nipple and said edge flange of the cap being spaced from the sides of the nipple and having its lower edge adapted to stand out of contact with the lower member in such position of the cap and said top portion of the cap having vents adapted for communication with the gas-discharge opening of the nipple and leading outwardly into said space between the edge flange of the cap and said nipple.

2. In a device of the character described, the combination of a gas-burner or the like having a gas-passage, a screen extended across said passage, a lower member having a pendent edge flange engaged in the gas-passage of the burner below said screen and having a central upwardly-extended nipple of less diameter than the gas-passage and provided with a gas-discharge opening in its top and a cap having a top portion and a pendent edge flange, the top portion of the cap being adapted to rest on the nipple and said pendent edge flange being extended around the sides of the nipple and spaced therefrom and also from the walls of the gas-passage with its lower edge elevated out of contact with the said lower member to permit free flow of gas between the parts, the top portion of the cap being corrugated to produce on its under side radial vents or channels leading from the gas-



discharge opening of the nipple to the space  
between the nipple and the edge flange of the  
cap when said cap is lowered, the parts of  
said top portion between the corrugations  
5 forming depressions on the upper surface of  
the cap adapted, when the cap is raised, to  
permit flow of gas over the top of the cap to  
the interstices of said screen.

In testimony whereof I have hereunto  
signed my name, at Chicago, Illinois, in the 10  
presence of two subscribing witnesses, this  
30th day of June, 1905.

PETER KELLER.

Witnesses:

PHILIPP SEILER,  
J. D. CAPLINGER.