T. A. BELL.

GAS BURNER TIP.

APPLICATION FILED JULY 27, 1914.

1,140,655. Patented May 25, 1915.

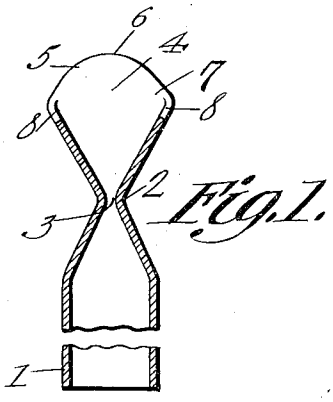


Fig. 1.

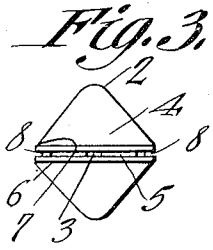


Fig. 3.

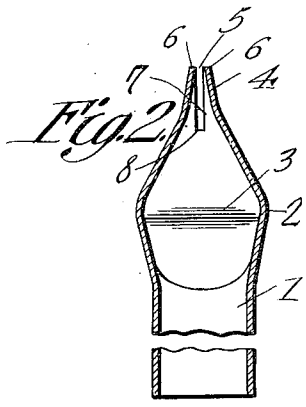


Fig. 2.

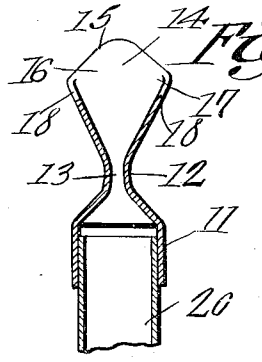


Fig. 4.

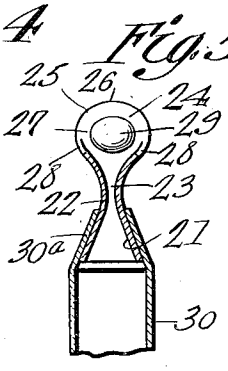


Fig. 5.

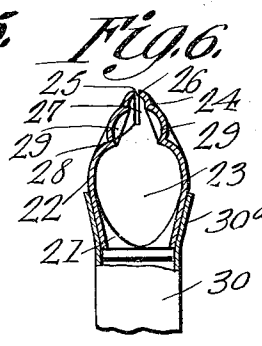


Fig. 6.

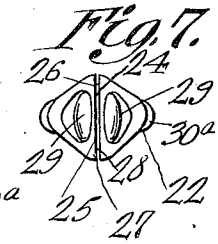


Fig. 7.

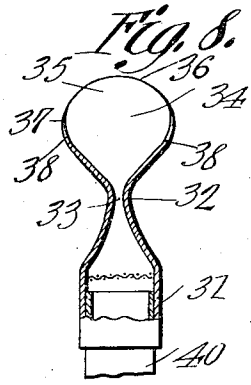


Fig. 8.

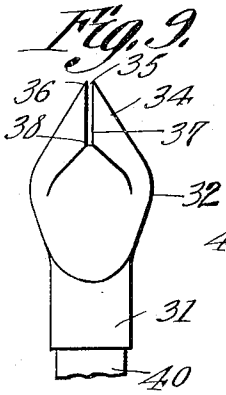


Fig. 9.

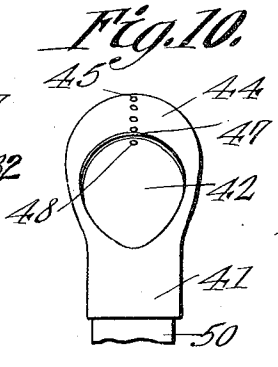


Fig. 10.

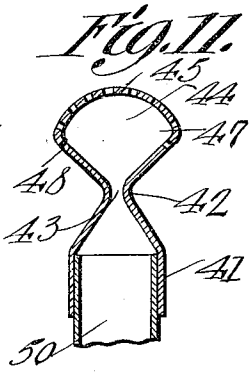


Fig. 11.

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UNITED STATES PATENT OFFICE.

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GAS-BURNER TIP.

1,140,655. Specification of Letters Patent. Patented May 25, 1915.

Application filed July 27, 1914. Serial No. 853,375.

To all whom it may concern:

Be it known that I, THOMAS ADDISON BELL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Gas-Burner Tip, of which the following is a specification.

The present invention appertains to gas burner tips, and aims to provide a burner tip of unique formation whereby the gas will be discharged and distributed in such a peculiar manner and over such a greater area, as to increase the efficiency of the tip and to increase the candle power or heat of the light according to whether the light or flame is employed for illuminating or heating purposes.

It is also within the scope of the present invention to provide a burner tip, formed or fashioned from a tubular member in a simple and inexpensive manner, and whereby the desired functions will be carried out.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention has been illustrated in several of its embodiments in the accompanying drawing, wherein:—

Figure 1 is a vertical section of one form of the invention, a portion being broken away. Fig. 2 is a vertical section of the first form of the invention taken at right angles to the plane of the section in Fig. 1. Fig. 3 is a plan view of the said form of the invention. Fig. 4 is a view similar to Fig. 1 illustrating a second variation of the invention. Figs. 5 and 6 are views similar to Figs. 1 and 2 delineating a third modification. Fig. 7 is a plan view of the third modification. Fig. 8 is a vertical section of a fourth modified form of the invention. Fig. 9 is a side elevation of the modified form illustrated in Fig. 8. Fig. 10 is a side elevation of still another variation of the invention. Fig. 11 is a vertical section of the form illustrated in Fig. 10.

Referring to Figs. 1, 2 and 3, wherein one form of the invention is illustrated, there is provided a tube 1, which may be of sufficient length, to constitute the body of the burner tube, and the upper end portion of which is formed in a peculiar manner, to provide the tip proper. To this end, the tube 1, has its opposite sides pressed or flattened close together or toward each other, as at 2, adjacent the upper end of the tube or intermediate the ends thereof. The inwardly pressed or flattened portions 2 provide an elongated transverse narrow slot 3 therebetween which is disposed at right angles to the axis of the tube 1 and which is longer than the diameter of the tube.

The opposite sides of the upper end of the tube 1 are flattened or pressed toward each other as at 4, to provide an elongated lateral outlet slot 5 therebetween, the upper end of the tube 1 being cut as at 6, to render the slot 5 arcuate in form. The slot 5 is disposed in a vertical plane at right angles to the slot 3, since the inwardly pressed or flattened portions 2 and 4 are arranged at right angles to one another.

The upper flattened end 4 of the tube which provides the elongated slot 5, forms the relatively wide portion 7, and the ends of the slot 5 are extended downwardly below the said wide portion 7, as at 8, partially into the portion 2.

In use, the burner tube or body 1 is applied in any suitable manner to the gas bracket, chandelier, supply pipe, or the like, and the gas flowing upwardly through the tube 1, and passing through the slot 3 provided by the flattened portion 2, will cause the gas to be spread laterally, without appreciably diminishing the flow of the gas, and then, as the gas rises from the slot 3 it is caused to change its direction of flow to the slot 5. This will cause the gas to be thoroughly agitated and distributed or spread to the maximum limit, whereby when the gas is discharged through the slot 5 and its extended ends or terminals 8, the gas will be distributed over the maximum area, in order to consume a larger proportion of oxygen for increasing the brilliancy or heat of the flame or light to a corresponding degree. Thus, due to the peculiar formation of the tip, the same will tend to increase the effi-

ciency of the light or flame, the slot 5 and its extended ends 8 causing the discharged gas to be spread to its fullest extent thereby increasing the area of the flame and correspondingly enhancing the consumption of oxygen.

As will be evident from the foregoing taken in connection with the drawing, the tip may be readily formed from tubular stock, by simply pressing or bending the same to form the flattened portions 2 and 4, and then cutting or trimming the upper end of the tube and extending the ends of the slot 5 in any suitable manner. As a result, the tip can be produced at a minimum expense.

In Fig. 4 a slightly modified form of the invention is illustrated, the same embodying a tubular portion 11 adapted to be slipped over a burner tube 20, and the tubular portion 11 having the flattened portion 12 intermediate its ends providing the slot 13, while the upper end or tubular portion 11 is flattened as at 14 to provide the outlet slot 15 arranged at right angles to the slot 13 for changing the direction of flow of the gas. The end of the tubular portion 11 is cut, as at 16, to correspondingly shape the slot 15 and the ends of the slot 15 are extended below the widest portion 17, as at 18.

The functions and advantages of the tip illustrated in Fig. 4 are the same as those described in connection with the first form illustrated in Figs. 1, 2 and 3.

The variation illustrated in Figs. 5, 6 and 7 is of slightly different form than the construction above described, since the tip is of peculiar shape and is permanently attached to the mouth or upper end portion of the burner tube 30. Thus, the lower end portion 21 of the tip is inserted within the upper end or mouth portion of the burner tube 30, and the upper end or mouth portion of the burner tube 30 is flattened, as at 30^a, with the intermediate flattened portion 22 of the tip. This causes the lower end portion of the tip to be locked within the upper end of the burner tube 30, the flattened portion 22 of the tip providing the lateral elongated slot 23. The upper end of the tip is flattened as at 24, to provide the outlet slot 25 lying in a plane at right angles to the slot 23, the edges 26 being cut, so that the upper end of the tip is approximately of elliptical form. The terminals 28 of the slot 25 are extended below the widest portion 27 of the upper or discharge end of the tip, and the sides of the flattened portion 24 are provided with instruck annular ribs 29 for reinforcing them, and for assisting in distributing the gas throughout the length of the slot 25.

The burner tip illustrated in Figs. 8 and 9, resembles that illustrated in Figs. 1, 2 and 3, but is of slightly different contour. The tubular portion 31 of the tip is adapted to be slipped over a burner or mixing tube 40, and the intermediate portion of the tip is flattened, as at 32, to provide the slot 33, while the upper end portion of the tip is flattened, as at 24 to provide the outlet slot 35, the upper end of the tip or the edges of the slot 25 being cut round, as at 36 and the ends of the slot 35 being extended below the widest portion 37, as at 38.

The tip illustrated in Figs. 10 and 11 embodies the tubular member 41 whose lower end is adapted to be inserted over the upper end of a burner or mixing tube 50, the intermediate portion of the tubular member 41, being flattened, as at 42 to provide the transverse elongated slot 43, while the upper end of the tip is rounded or dome shaped, as at 44, and is provided with a series of apertures 45 lying in a plane at right angles to the slot 43, the terminal apertures being extended downwardly below the widest portion 47 of the upper end of the tip and partially into the flattened portion 42, as at 48. The apertures 45 provide a series of jets for heating purposes, although the apertures 45 may be supplanted by a slot as in the other forms when a fan-like flame is desired.

From the foregoing, taken in connection with the drawing, the advantages and attributes of the several forms will be obvious to those skilled in the art, it is thought, without further comment being necessary, it being noted that the several forms of the invention have common advantages, while the several forms also have independent features. The salient or cardinal feature is the double flattening of the tube at right angles to one another, whereby the intermediate and outlet slots are arranged angularly relative to one another, to change the direction of flow of the gas, and to thereby distribute or spread the gas to the maximum limit, in connection with the distended ends of the outlet slot below the widest portion of the upper end of the tip. As a result, the efficiency of the tip will be materially increased, with the same amount of gas or fuel consumption, as usual. Although the upper end of the tip illustrated in Figs. 10 and 11 is not flattened, yet, the outlet is arranged in a plane at right angles to the plane of the slot 43 which will effect the desired spreading of the gas.

Having thus described the invention, what is claimed as new is:—

1. A burner tip embodying a tube having opposite sides thereof pressed close together adjacent the upper end of the tube to provide an elongated transverse narrow slot longer than the diameter of the tube, and having a transverse outlet at its upper end arranged angularly relative to the said slot.

2. A burner tip embodying a tube having its opposite sides pressed close together adjacent the upper end of the tube to provide

an elongated transverse narrow slot longer than the diameter of the tube, and having a transverse outlet at its upper end arranged angularly relative to the said slot, the terminals of the outlet extending downwardly partially into the said pressed portions.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

THOMAS ADDISON BELL.

Witnesses:
JAMES W HARLE,
ROSE SAFFER.

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