(No Model.)

J. E. KELLY.

GAS BURNER.

No. 549,604. Patented Nov. 12, 1895.

Fig. 1.

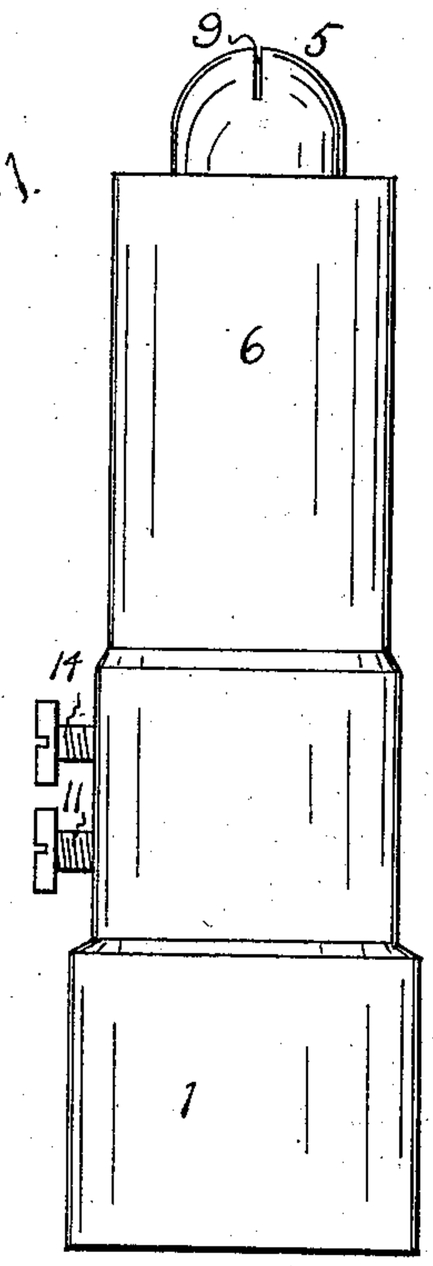

Fig. 2

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GAS-BURNER.

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Application filed January 24, 1895. Serial No. 536,114. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. KELLY, a citizen of the United States, residing at Johnsonburg, in the county of Elk and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof as to enable others skilled in the art to make and use the said invention.

This invention relates to gas-burners or jet-tubes for the purpose of burning gas for illuminating uses, and is specially applicable to the gas known as "natural" gas, and has for its objects steadiness of light, economy of gas, simplicity of construction, facility of access to all parts for cleansing, easy adjustment to suit the varying pressures under which such gas is supplied, and cheapness in first cost of production.

To these ends this invention consists of a burner having a central tube terminating in a slotted tip of usual construction, a regulating-valve for reducing pressure located in a constricted passage from the base of the burner, an annular chamber at the top sursounding the central chamber and terminating below the slotted tip of the burner, and an adjustable valve communicating from the lower part of the annular chamber, whereby a small portion of gas passes into the annular chamber, and igniting near the top produces a current of heated and rarefied air, which protects the flame supplied from the central chamber from contact with cold air and insures steady and uniform combustion and light.

I will now proceed to particularly describe the mode of making and using this invention, referring in so doing to the accompanying drawings, in which—

Figure 1 shows an elevation of a gas-burner embodying this invention; Fig. 2, a vertical central section thereof.

Referring to the drawings, 1 is the base of the burner, internally screw-threaded at 2 for attachment to the gas-supplying pipe.

3 is a small central passage extending a short distance above the base, and is enlarged into the low-pressure chamber 4, terminating in a slotted tip 5, from which gas issues and burns. The gas passing through the passage 3 is expanded and reduced to a low pressure and also reduced in temperature in the chamber 4, where it is held at a low pressure sufficiently long to acquire heat from the walls of the chamber before passing out to supply the flame.

Attached to the lower part of and surrounding the chamber 4 is a cylinder 6, open at the top 7, and with an intervening annular space 8 between it and the exterior of the chamber 4. The top 7 of the cylinder 6 is a small distance below the level of the slot 9 in the tip 5.

An opening 10 is drilled into the side of the burner, leading into the passage 3 and screw-threaded and fitted closely with a screw 11, the end of which is rounded, so as to fit against the opposite side of the passage 3 and close it, or when retracted the full size of the passage 3 is opened. By any intermediate adjustment the extent of aperture can be varied and pressure thus regulated. Above the screw 11 a hole 13 is drilled in the cylinder 6, and in line therewith holes 13′ and 13″ are drilled through the walls of the chamber 4 and the portion marked 15 and screw-threaded. Into this is fitted the screw 14, which, when screwed in the full depth, closes the hole 13″. When retracted the hole 13″ is opened to any desired extent and a slight flow of gas from the chamber 4 passes into the annular chamber 8, and as it approaches the top 7 of the cylinder 6 it ignites and burns, and thus heats and rarefies the air contiguous to the cylinder 6 and burner-tip 5 and intercepts and moderates the temperature of the air before contacting with the flame supplied with gas through the slot 9, and renders the light steady and more brilliant.

The base 1 and chamber 4 are formed integrally with the shell of plate metal by the well-known "drawing-up process," and the portion marked 15 is inserted as a plug and forced into place tightly, the burner-tip 5 is inserted, and the cylinder 6 fitted from tube over the shell and the perforations drilled and screw-threaded, and the screws 11 and 14 inserted, as above described.

The screws 11 and 14, passing through the cylindric parts 1, 4, 6, and 15 of the burner, serve not only as regulating-valves, but also act as a simple and inexpensive means to retain the parts 4, 1, 6, and 15 in proper relation to each other, which parts are liable

otherwise to loosen by repeated heating and to be put out of adjustment, or even to be separated and lost. The device thus affords the production of burners of good durability at low cost.

In practice these burners, by means of their adjustment, are adapted to meet the variations of quality that occur in natural-gas supply, and by their simplicity of construction are within the capacity of persons of most moderate skill to successfully adjust.

Having described my invention, what I claim is—

In a burner for illuminating combustion of natural gas, the base 1 adapted to be attached to a gas supply pipe the central passage 3, and screw 11 fitted to intersect and adjustably constrict the passage 3 and to retain the cylinder 6 in the base 1, in combination with a superposed low pressure chamber 4, cylinder 6 inclosing a space open at the top around the chamber 4 a tip 5 and the screw 14 fitted in the aperture 13, 13′ and 13″ and through a portion of the burner base 1 as shown and described.

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Witnesses:
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