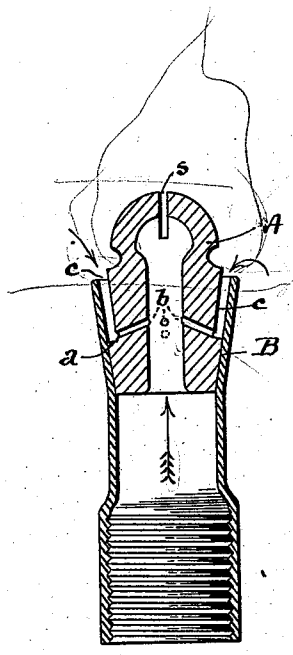
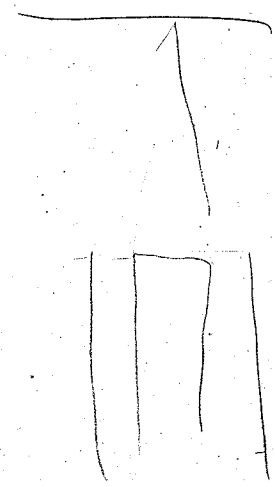
(No Model.)

A. J. ENGLISH.

GAS BURNER.

No. 382,695. Patented May 15, 1888.





Attest.
C. D. Kerr.
C. L. Speer.

Inventor.
Andrew J. English.
By Kell & Rose Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ANDREW J. ENGLISH, OF CINCINNATI, OHIO.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 382,695, dated May 15, 1888.

Application filed January 31, 1887. Serial No. 226,020. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. ENGLISH, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to gas-burners of the class employed in burning "carbureted air" or "vaporized gasoline;" and it consists in an improved construction whereby the same are cheapened in cost of construction and their efficiency in the vivid combustion of the gas increased. In such burners it has been found necessary to supply an additional quantity of the gas around the exterior of the burner proper, and to this end it has been customary to mount the "tip" in a metallic casing surrounded with a second metallic casing, leaving an annular chamber, into which the additional gas required is introduced through apertures provided with means of regulating the quantity of gas. In burners so constructed such means of regulation are a necessary feature, for the reason that the annular chamber is thus formed of metal surfaces at both sides, and the heat derived from the tip is rapidly conducted away by the inner casing in which the tip is seated. As a consequence, the outer sheet of gas derives no practical benefit from the heat of the tip in the way of regeneration or heating, and consequently the quantity which can be utilized by the gas-flame must depend upon the atmospheric temperature and be regulated accordingly.

In carrying out my invention no second or extra casing is necessary. I obtain the annular chamber by enlargement of the containing-casing, and fit the tip therein, as hereinafter explained, in such manner as to utilize the lava tip as a "regenerator" for heating the extra gas passing around the same. The latter feature of my invention and the use made thereof renders it unnecessary to regulate the quantity of gas passing into the said chamber, excepting by forming the admission-apertures with proper limitations as to size in the original construction.

My invention will be best understood in connection with the accompanying drawing, illustrative of the same, in which the figure is a vertical axial section of a preferred form of the invention complete.

Referring now to the drawings, A designates the tip, which is usually and preferably made of steatite or of some refractory composition, and B the casing or tip-holder, the two together constituting the burner.

I prefer to give the upper part of the casing B a slight flare and turn the tip A to a corresponding contour, so as to seat firmly at the bottom of the flare within the casing.

In the preferred form of my invention (shown in the figure) I reduce the diameter of the upper part of the tip, as shown, leaving an annular space, *c*, between itself and the casing above the shoulder *a*, with the casing extending upward to or nearly to the neck of the tip. The tip otherwise is of the ordinary construction, hollow within and semi-spherical at the top, with an open slot, *s*, cut across the top into the hollow interior. Apertures *b b* are drilled radially through the shell of the tip just above the shoulder *a*, preferably inclining upward from outside to inside, in order to admit the extra gas to the annular chamber *c* thus formed above the shoulder *a*, and at the same time to aid its distribution into an annular sheet within said chamber. The extra gas is thus delivered into an annular chamber, the inner wall of which is the material of the tip itself, which is highly heated by the flame of gas issuing above, and imparts heat to the annular sheet of gas passing through the chamber formed between itself and the casing. As a result of this construction, the gas entering the annular chamber is heated more or less highly before reaching the flame issuing from the upper slot of the burner, and ignites more readily and at a lower level, so that instead of taxing the "bat's-wing" flame of the burner for heat to raise it (the extra gas) to the point of combustion, (as is the case in burners of the old construction, to which cause is due the necessity of the means of regulation before referred to,) the annular sheet of gas being already heated inflames more readily, and this condition renders it in a great degree independent of atmospheric temperature and obviates the necessity of special regulating means.

I claim as my invention and desire to secure by Letters Patent of the United States—

The combination of the tip A, of refractory material, and the flaring casing B, the tip seating rigidly at the bottom of the flare by the en-

largement or shoulder *a*, and narrowed above to form an annular chamber immediately surrounding the burner within the casing and provided with radial passages *b*, opening into said annular chamber from the gas-supply, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ANDREW J. ENGLISH.

Witnesses:
L. M. HOSEA,
C. D. KERR.