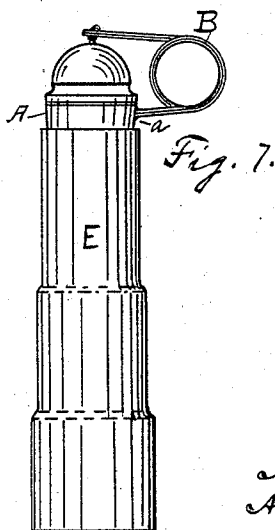
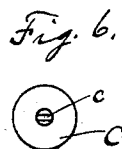
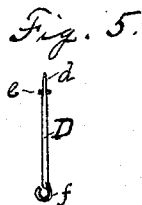
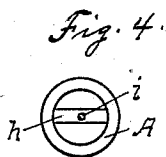
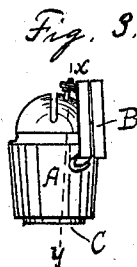
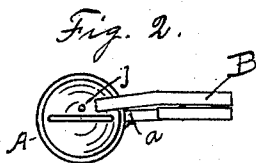
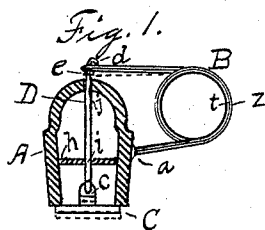


(No Model.)

I. HARRISON & A. M. KILBERG.
GAS BURNER TIP.

No. 586,182.

Patented July 13, 1897.



Witnesses:

J. F. Lewis
R. J. Kernan

Inventors:
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UNITED STATES PATENT OFFICE.

ISAAC HARRISON AND ALBERT M. KILBERG, OF SCRANTON, PENNSYLVANIA;
SAID KILBERG ASSIGNOR OF ONE-TWELFTH TO AARON GOLDBERG,
JOSEPH BURROS, AND ISIDOR FINKELSTEIN, OF SAME PLACE.

GAS-BURNER TIP.

SPECIFICATION forming part of Letters Patent No. 586,182, dated July 13, 1897.

Application filed April 11, 1896. Serial No. 587,085. (No model.)

To all whom it may concern:

Be it known that we, ISAAC HARRISON and ALBERT M. KILBERG, citizens of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Burner Tips; and we declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to that class of gas-burners in which there is an automatic opening and closing device designed to cut off the flow of gas when the flame is extinguished by accident or otherwise. Heretofore such devices have been constructed as a part of or as an appendage to the jet-tube and have been so complicated and expensive as to prevent their coming into general use.

The object of our device is to furnish a simplified automatic cut-off attached to an ordinary metallic gas-burner tip which may be inserted or attached to the common jet-tubes now in use.

To this end our invention consists of the construction, combination, and arrangement of parts as herein set forth, and illustrated in the accompanying drawings, in which—

Figure 1 is a cross-section of a gas-burner tip having our automatic closing device attached. Fig. 2 is a top view of the same with part of small thermostat broken away. Fig. 3 is a side elevation of our tip complete. Fig. 4 is an underside view of the same with valve removed for the purpose of showing detail inside the tip. Fig. 5 is a small rod used to connect the valve to the thermostat. Fig. 6 is a top view of the valve-lid. Fig. 7 shows our tip attached to a common jet-tube. All the figures are drawn to a scale of twice the actual size.

Similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings, A designates the main portion of our tip, which is made of any

suitable metal and is shaped or fashioned like the tips in common use, except that it is provided internally with a small horizontal plate *h*, having at its middle a small hole *i*, which serves as a guide through which the connecting-rod D slides. The lower edge of the rim of the tip is ground off, so as to form a seat for the valve disk or lid C. The said disk is furnished with an eye or small staple *c*, into which the hook *f* of the connecting-rod D is hooked. The rod D, after the disk C is attached to it, is passed upward through the guide-hole *i*, and the upper end *d* is protruded through the small hole *j*, which is drilled at one side of the orifice of the tip. After it is passed through the hole *j* it may be provided with a small stop *e*, which will prevent it from slipping out or too far downward, but will allow the disk C to drop to the position shown by the dotted lines. The thermostat B is constructed by sweating together two small strips of metal of varying expansibility, the metal of greater expansibility *z* being on the outer side and the metal of the less expansibility being on the inner side when coiled. The two ends of the coil are brought into nearly parallel position. One of them is then rigidly attached to the side of the tip at *a* by a drop of solder or otherwise. The other end is brought over the hole *j* in the tip, and the rod D is hooked to it by means of extending the small shank *d* through a hole in the end of the strip and bending the shank over to form a hook. The coil is then adjusted by bending until the valve is held quite snugly closed at normal temperatures, but will be readily pressed open when heat is applied to the coil B, adapted to operate it.

In the operation of the device a tip fitted with the parts as described is set into the top of a jet-tube E, as any ordinary tip would be, and the gas-cock turned, as usual, with an ordinary burner and tip. The valve being closed no gas will escape until the flame of the match or taper heats the coil B, which immediately depresses the valve-disk C to the position shown by dotted lines, thus opening the passage for gas, the first flow of which ignites. The flame of the burning jet of course

keeps the coil heated and the valve open; but if the flame is extinguished the coil B cools and closes the valve.

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

1. In a gas-burner tip, the combination of a thermostat in the shape of a coiled strip having two ends thereof substantially parallel, one end of the same rigidly attached to the side of said tip, and the other end connected to a valve adapted to control the flow of gas, by means of a connecting-rod extending vertically down through a hole in the top of the said tip, to a horizontal valve-lid fitted to the lower rim of said tip, substantially as specified.

2. The herein-described automatic opening and closing device, consisting of the tip A

having its lower edge or rim ground off so as to become the seat of the valve-lid C, the lid C and connecting-rod D sliding through the guides or holes *i* and *j*, the said rod connecting the lid C to one end of the coiled thermostat B, the thermostat B having an end rigidly attached to the side of the tip A and the other end attached to the said connecting-rod by means of which the said thermostat is adapted to operate the valve-lid C, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

ISAAC HARRISON.
ALBERT M. KILBERG.

Witnesses:

CHAS. W. DAWSON,
D. P. MURRAY.