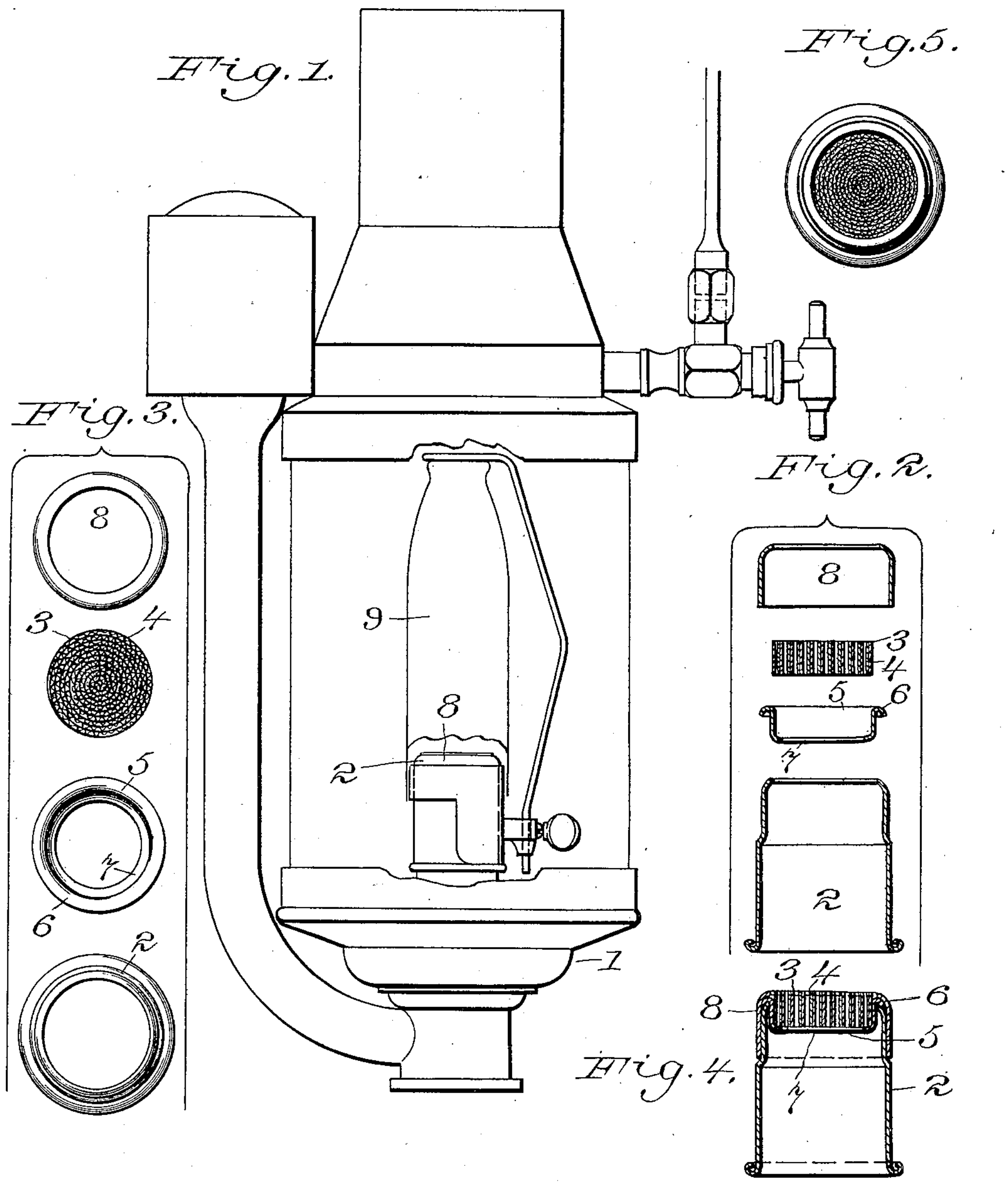
No. 648,964. Patented May 8, 1900.

A. KITSON.

GAS AND VAPOR BURNER.

(Application filed May 3, 1899.)

(No Model.)



WITNESSES:

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ARTHUR KITSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE KITSON HYDROCARBON HEATING AND INCANDESCENT LIGHTING COMPANY, OF SAME PLACE AND CHARLESTON, WEST VIRGINIA.

GAS AND VAPOR BURNER.

SPECIFICATION forming part of Letters Patent No. 648,964, dated May 8, 1900.

Application filed May 3, 1899. Serial No. 715,450. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR KITSON, a subject of the Queen of Great Britain, and a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Gas and Vapor Burners, of which the following is a specification.

My invention relates to gas and vapor burners; and it consists of an improved form of built-up gauze for use in said burners.

In various forms of burners, and especially in the vapor-burner employing the incandescent mantle—such, for instance, as is shown in my Patent No. 600,792, granted March 15, 1898—the intense heat generated oxidizes and burns out the ordinary form of wire-gauze used in the burner to prevent the flame from passing back down into the mixing-tube. This not only requires the time of a workman and the expenditure of materials in replacing the gauze, but it necessitates the removal of the incandescent mantle to enable such repairs to be made. As the incandescent mantle becomes extremely fragile after exposure to the high heat of this form of burner, it is nearly always broken in such removal, and thus the additional expense of a new mantle is incurred. My improved form of built-up gauze has proved to be practically indestructible, and all these difficulties are avoided by its use.

The preferred apparatus embodying my invention is illustrated in the accompanying sheet of drawings, in which—

Figure 1 represents the operative portions of the single-burner lamp. Fig. 2 represents detail sections passing through the axis of the burner proper. Fig. 3 represents similar detail plan views of the parts of the burner and gauze. Fig. 4 is a vertical section with the parts shown in Fig. 2 assembled. Fig. 5 is a similar plan view.

Throughout the drawings like reference-figures refer to like parts.

The vapor-burning apparatus 1 has the burner composed of a metal nipple 2, into which the gauze is inserted near the mouth of said nipple.

My improved built-up gauze is composed of a strip of thin flexible material 3, wound or coiled upon itself, the adjacent coils or windings being spaced a proper distance apart by any convenient means, such as the correspondingly-coiled strip 4 of corrugated metal.

In Fig. 3 the built-up gauze is formed by placing a strip of corrugated metal upon a similar strip of flat metal and coiling the two up into a spiral.

The built-up gauze formed in either of the ways above described or by otherwise combining and bending up the flexible strip of metal is located in the mouth of the burner-nipple 2 by any convenient means. The preferred method is illustrated in Figs. 2 and 3. The coil is placed in a retaining-ring 5, having an upper outwardly-projecting or overhanging lip 6 and a lower inwardly-projecting lip 7. This retaining-ring is then placed in the mouth of the nipple 2, the overhanging lip 6 resting upon the upper edge of the nipple. The annular cap 8 is then placed over the top of the nipple of thimble 2 and also overhangs the lip 6 or the ring 5, holding all parts together.

I may remark that the spiral-coil form tends to expand and thus requires a retaining-ring 5. By this expansion it firmly seats itself in such retaining-ring, and it is accordingly unnecessary for the retaining-cap 8 to overhang the gauze.

The mode of operation is of course evident. The parts being assembled as shown in Figs. 2 and 5 and the burner-thimble placed in the position shown in Fig. 1 in the lamp, the upward current of vapor and air will pass through the numerous fine channels in the built-up gauze and burn under the mantle 9. The flame, however, cannot get down through said fine channel, and so the safe and steady action of the lamp is assured. The built-up gauze having the depth or thickness shown conducts downward the heat generated on its upper surface by the flame. The lower portion of the built-up gauze is kept at a lower temperature by the current of air and vapor always passing through it, and thus no part of the structure is allowed to reach a tem-

perature at which melting or destructive oxidation can occur, and accordingly this form of gauze will last almost indefinitely.

Of course various changes could be made in the various details of construction shown without departing from the spirit and scope of my invention so long as the relative arrangement of parts shown in the drawings or the principle of construction disclosed in the specification is preserved. Other means for maintaining the spacing of the strips might be employed. The strips might be bent or wound in other ways, and other forms of burner-thimble and retaining devices might be substituted for those shown and described. All these modifications, however, are matters of form and not of substance, and the resulting structures I consider still to be within the scope of my invention.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. An improved gas and vapor burner comprising the following parts in combination: a thimble, a built-up gauze formed of strips of thin flexible material bent into a coil, a ring for retaining said coil in a closed position, and means for retaining said ring in the end of the thimble.

2. An improved gas and vapor burner comprising the following parts in combination: a thimble, a built-up gauze formed of strips of thin flexible material bent into a coil, a ring for retaining said coil in a closed position, a lip on said ring overhanging the end of the thimble, and an annular cap fitting over the end of said thimble and the lip on said ring.

Signed by me at New York city, New York, this 1st day of May, 1899.

ARTHUR KITSON.

Witnesses:
LILIAN FOSTER,
W. H. PUMPHREY.