

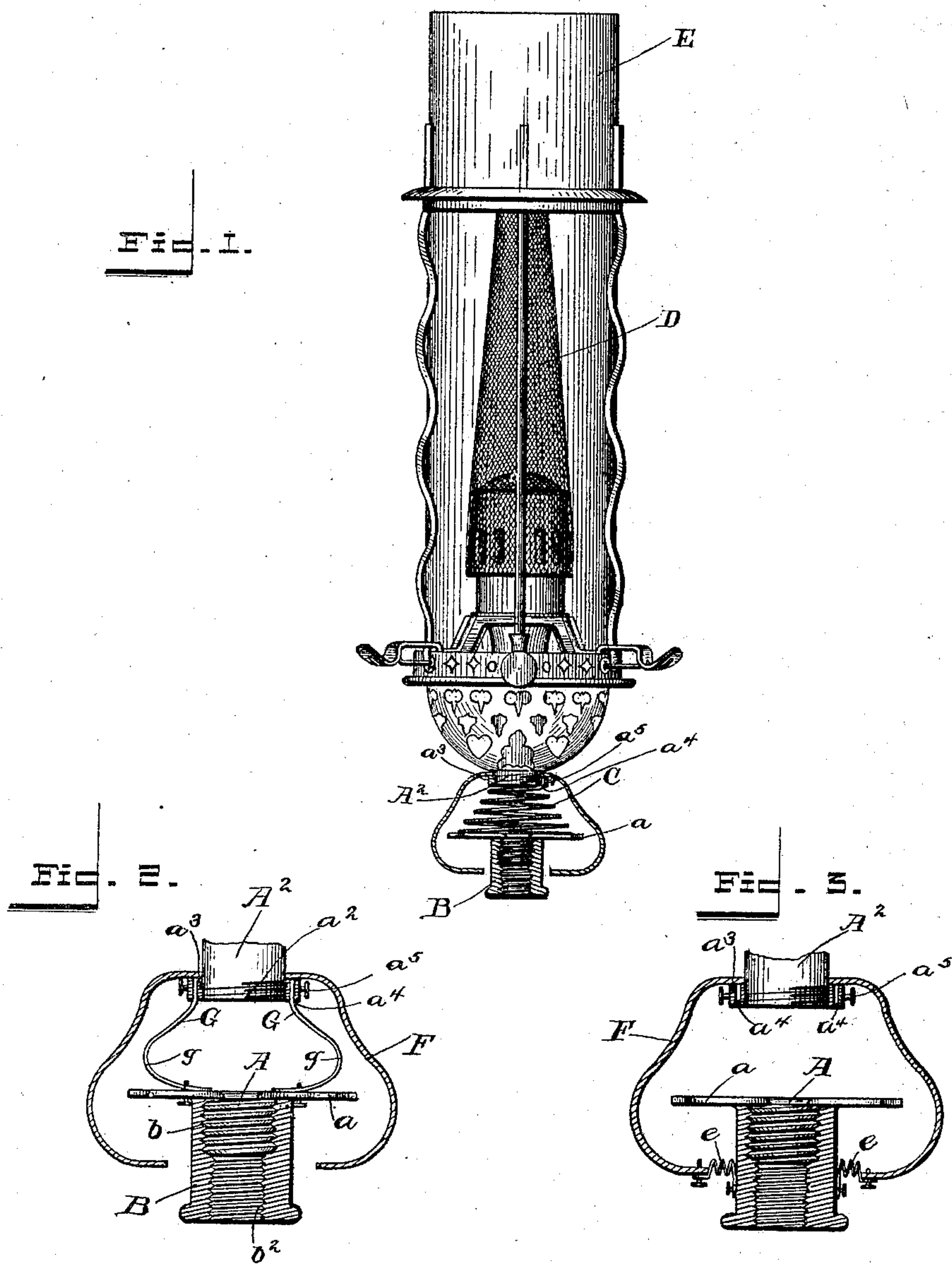
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Patented July 24, 1900.

S. MASON.
BUNSEN BURNER.

(Application filed Oct. 16, 1896.)

(No Model.)



Witnesses

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BUNSEN BURNER.

SPECIFICATION forming part of Letters Patent No. 654,409, dated July 24, 1900.

Application filed October 16, 1896. Serial No. 609,118. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY MASON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Bunsen Burners; and I do 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.

This invention relates to Bunsen burners; and it relates more particularly to burners of this kind adapted for use in connection with mantles of a fragile nature and which are designed to be rendered incandescent by heat from the burners.

The primary object of the present invention is to produce a Bunsen burner so constructed as to prevent injury to a fragile mantle carried by the burner by reason of shocks, jars, tremulous movements, &c.

With this object in view the invention consists, essentially, of a Bunsen burner having interposed between the base of the tube and the upper part thereof an elastic or yielding connection whereby air is admitted between the parts of the tube and also between the parts of the connection and whereby the upper portion of the burner and the parts connected thereto are protected against injury from shocks, jars, &c.

Further, the invention consists of a Bunsen burner having its tube made in sections arranged one above the other, with a space between the parts for the admission of air to the interior of the tube and an elastic or yielding connection between the parts of the tube, the connection being of a form to permit the passage of air and gas to the point of combustion.

Further, the invention consists of a Bunsen burner having its tube made in parts and having a space between the parts for the admission of air and a spring or springs connecting the parts of the tube, the spring or springs being of a form to permit up-and-down and lateral movement of the upper part of the tube and of the parts connected therewith.

Further, the invention consists in various novel details of construction whereby the object of the invention is attained and the effectiveness of the device is insured.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my invention, the same being shown as applied to a gas-fixture having an incandescent mantle applied thereto. Fig. 2 is a detail view of a modified form of connection between the parts of the burner-tube, and Fig. 3 is a detail view of a modified form of envelop for the tube.

In the drawings, A represents the lower portions of a Bunsen tube, the tube being shown as forming part of a burner by which heat from the combustion of gas is brought into contact with a mantle. The exterior of the portion A of the tube is provided with screw-threads designed to engage corresponding screw-threads *b* on the inner face of a base B, which base forms means of attaching the burner to a gas-fixture, and to that end has screw-threads *b*² in its lower end. Extending laterally from the top of the portion A of the tube are arms *a*, preferably three or more in number, upon which rests and to which is secured a spring C, the latter forming a support for the upper portion of the Bunsen tube and the parts connected therewith.

A² represents the upper portion of the Bunsen tube, and to this upper portion are attached by suitable means the mantle D, the chimney E, surrounding the mantle, and the envelop F, forming a chamber from which air is supplied for mixture with gas in the tube.

The upper end of the spring C may be connected in any suitable way to the lower end of the upper part of the Bunsen tube, by which the latter and the parts connected thereto will be held in proper relation to the lower part of the tube. One means for accomplishing this will now be described. The lower end of the part A² is externally screw-threaded at *a*², and upon these screw-threads is placed a band *a*³, having internal screw-threads. The band has an opening *a*⁴, adjacent to which is a set-screw *a*⁵, passing through the band and entering the opening. The upper end of the spring C is introduced into the opening *a*⁴ and is secured in its position by the set-screw, thus securely joining the spring to the band. This

band is preferably composed of some material which is a poor conductor of heat in order that there may be no danger of the heat of the Bunsen tube being communicated to the spring through the band sufficiently to endanger the temper of the spring.

The envelop F is of a form to inclose the Bunsen tube and to form a chamber around the same, to which chamber air is admitted and from which air is supplied to the interior of the Bunsen tube to mix with the gas in the tube. The envelop is contracted at its upper end and is slipped over the upper portion A² of the tube and rests upon and is supported by the band α^3 . The lower end of the envelop has therein an opening of a size to receive the base B of the burner and to allow considerable lateral movement of the envelop without coming into contact with the base. The space between the lower end of the envelop and the base is sufficient to allow the inlet of air into the chamber for mixture with the gas in the tube to insure perfect combustion of the gas.

The form of the spring C (shown in Fig. 1 of the drawings) is preferable for some reasons. Inasmuch as it is placed at the point in the tube where air is admitted its convolutions are a short distance apart, forming a free passage for air between them. As the entire weight of nearly all the parts of the burner is imposed upon the spring, the latter has a broad base resting on the arms α , giving an adequate foundation, and as a coil-spring is necessarily longer than any other form of spring occupying the same amount of space there is more material through which the jars and agitations received upon the base must pass through before being impressed upon the upper portion of the burner, resulting in lessening their violence and rendering them harmless to the mantle mounted upon the upper portion of burner.

The form of spring referred to is not essential to the construction, and any form of spring permitting a gentle up-and-down and lateral movement of the upper portion of the burner in response to the movement of the lower portion may be employed or a plurality of springs may be used. For instance, as shown in Fig. 2 of the drawings, any desired number of leaf-springs G may be attached to the band α^3 at their upper ends and at their lower ends to the portion A of the tube. The modified form of springs G extend downward and outward from their points of attachment to the band to a point g, where they are bent inward to the places of attachment to the part A of the tube.

In some situations in which the burners are used it may be necessary to provide an attachment in the nature of a buffer between the lower part of the envelop and the base B. For this purpose small coil-springs e may be attached at intervals to the lower part of the envelop and to the base B, thus preventing violent striking of the envelop against the

base, which, as the mantle and envelop are connected to the same part, might result in injury to the former.

By the construction and arrangement of the parts herein described I provide in a simple inexpensive manner and by means which will not interfere with the perfect working of the Bunsen burner a support for the principal parts of the burner, and particularly of the mantle and chimney, by which agitations, jars, or tremblings of any kind are either entirely taken up or so modified as to offer no injury to the fragile parts.

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

1. A Bunsen burner having its tube made in two parts with a space between them for the admission of air and having interposed between the base of the tube and the upper part thereof an elastic or yielding connection, through openings in which air is admitted and whereby the upper portion of the burner and the parts connected thereto are protected against injury from shocks or jars, substantially as described.

2. A Bunsen burner having its tube made in sections arranged one above the other with a space between the parts for the admission of air to the interior of the tube, and an elastic or yielding connection between the parts of the tube, the connection being of a form to permit the passage of air and gas to the point of combustion, substantially as described.

3. A Bunsen burner having its tube made in parts, and having a space between the parts for the admission of air, and a spring arranged to admit air through the convolutions thereof and connecting the parts of the tube, the spring being of a form to permit up-and-down and lateral movement of the upper part of the tube and of the parts connected thereto, substantially as described.

4. A Bunsen burner having its tube made in parts, and having a space between the parts, and a spiral spring connecting the parts of the tube and through the convolutions of which air is admitted, substantially as described.

5. A Bunsen burner having its tube made in parts, and having a space between the parts, and a spiral spring conical in general contour interposed between and connected to the different parts of the tube and arranged to admit air through its convolutions, substantially as described.

6. A Bunsen burner having its tube made in parts, and having a space between the parts, a spring connecting the parts of the tube, and an envelop surrounding the tube and having air-inlet openings, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SIDNEY MASON.

Witnesses:

J. G. HOPKINS,
N. A. KELLY.