

No. 688,314.

Patented Dec. 10, 1901.

C. M. KEMP.
BUNSEN BURNER.

(Application filed Mar. 14, 1901.)

(No Model.)

Fig. 1.

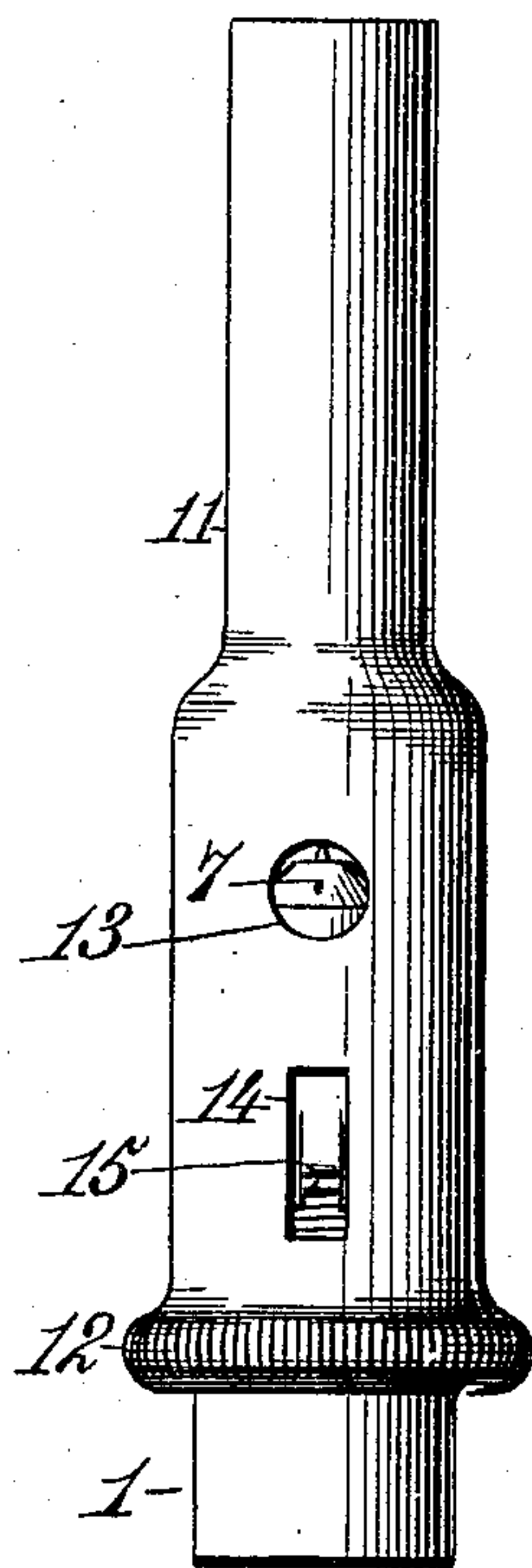


Fig. 2.

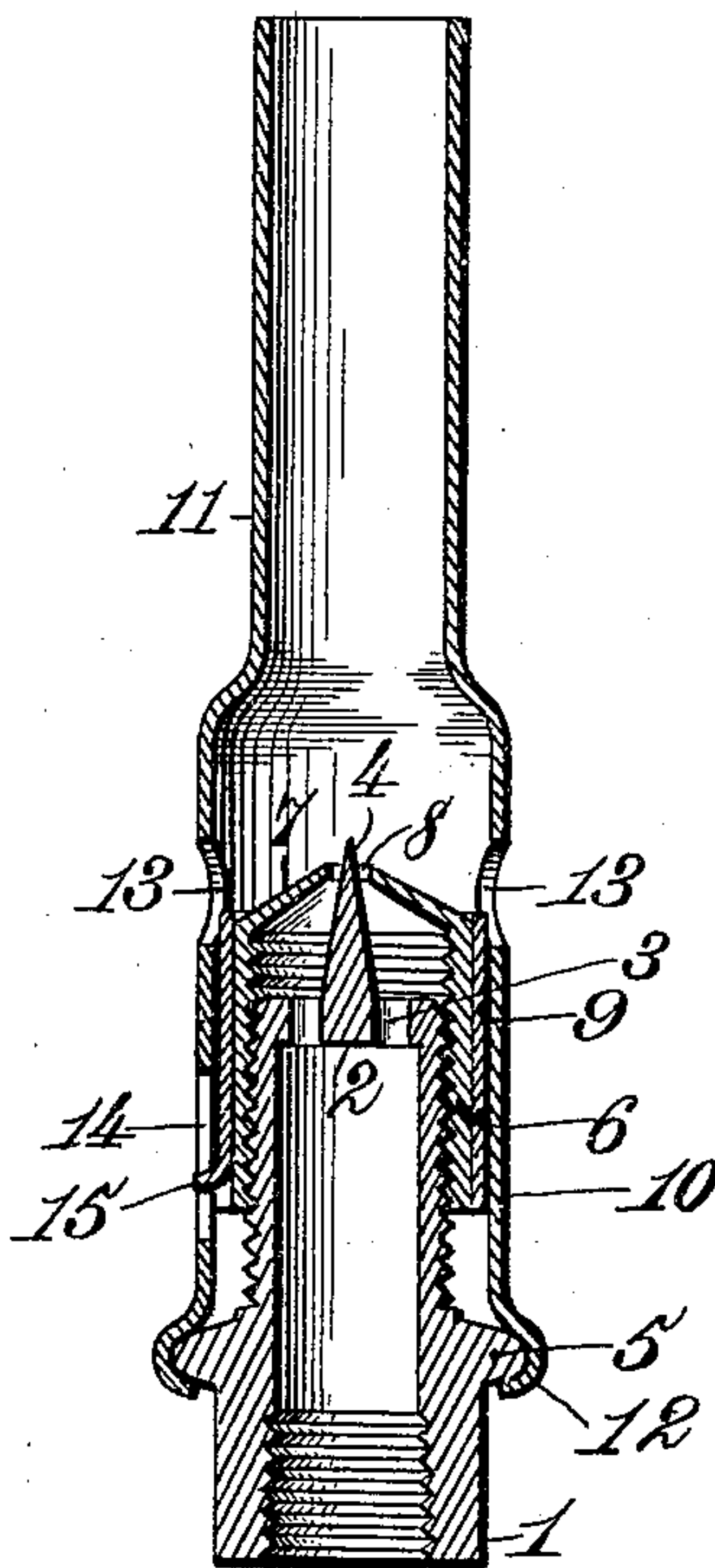
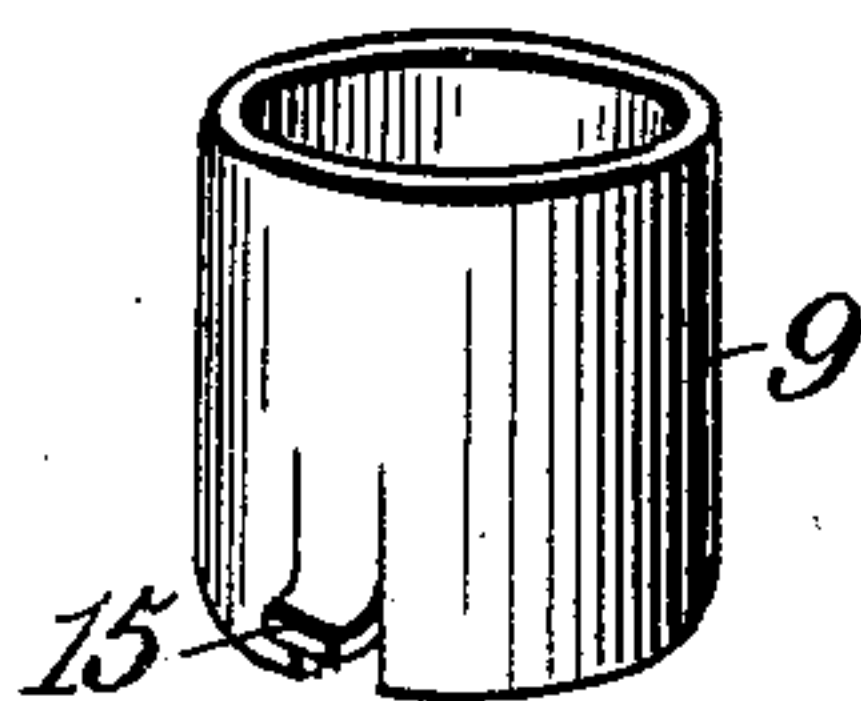


Fig. 3.



Witnesses.
Robert Everett.
W. H. Clarke.

Inventor.
Clarence M. Kemp.
By *J. Granville Meyers*
Att'y.

UNITED STATES PATENT OFFICE.

CLARENCE M. KEMP, OF BALTIMORE, MARYLAND.

BUNSEN BURNER.

SPECIFICATION forming part of Letters Patent No. 688,314, dated December 10, 1901.

Application filed March 14, 1901. Serial No. 51,059. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE M. KEMP, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented new and useful Improvements in Bunsen Burners, of which the following is a specification.

This invention relates to Bunsen burners, and especially to that type of such burners wherein the flow of both the gas and air to the burner may be simultaneously regulated and accurately proportioned by a slight adjustment of a single part of the burner, whereby by a very slight manipulation of said part the flow of gas may be increased and the flow of air simultaneously diminished, or vice versa, to accommodate the burner to the quality of gas employed or the pressure at which it is furnished.

The present invention has for its objects to improve and simplify the construction of such a device, reduce the number of parts and the cost of manufacture, render the device more compact and less bulky, and to insure a nicer or more minute and accurate regulation of the admission of gas and air to the burner.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a view in side elevation of my improved device. Fig. 2 is a vertical sectional view thereof; and Fig. 3 is a detail view of the sleeve, showing the manner of forming the tongue.

My invention is especially designed for use in connection with incandescent illuminating-mantles; but it will be manifest to those skilled in the art that it may be employed for various different purposes.

Referring to the drawings, the numeral 1 indicates the gas-supply pipe, comprising a short section of metallic tubing, provided at its upper end with a partition or diaphragm 2, which is provided with a plurality of perforations 3, forming passages for the flow of gas therethrough, and provided centrally with an upwardly-projecting tapered or conical valve 4. Formed externally on the gas-sup-

ply tube and intermediate its ends is a circumferential bead or collar 5, and between said bead or collar and the upper end of the tube the latter is externally threaded, as shown.

Screwed over the upper threaded end of the gas-supply tube 1 is an internally-threaded cap 6, provided at its upper end with a top or head 7, which has a centrally-arranged port or perforation 8, through which the conical valve 4 projects. It will be obvious that by turning the cap 6 about the gas-supply tube in one direction or the other said cap will be raised or lowered and the area of the port or perforation 8 in the top of the cap will be thereby increased or diminished, thus increasing or diminishing the flow of gas there-through proportionately to the distance the cap may be moved vertically.

Fixed on the cap 6 is a cylindrical sleeve 9, preferably formed of thin sheet metal, and loosely fitted about said sleeve is the burner-tube 10, comprising a thin sheet-metal tube, which is preferably reduced at its upper end, as at 11, and at its lower end is provided with a circumferential flange 12, which loosely embraces the bead or collar 5 on the gas-supply pipe. From the construction described it is apparent that the burner-tube may be freely rotated about the gas-supply pipe, but is incapable of any vertical movement. Formed in the burner-tube at a point approximately opposite the upper portion of the valve 4 is a plurality of air inlets or ports 13, said inlets or ports being of any suitable or preferred shape and of any desired number.

For the purpose of vertically adjusting the cap 6 I form a vertical slot 14 in the burner-tube and strike up from the sheet-metal sleeve 9 a tongue 15, which projects through said slot in the burner-tube. It will be evident that by means of this arrangement if the burner-tube be rotated the sleeve 9, fixed on the cap 6, will also be rotated in the same direction and will rotate the cap, and, as before described, as the cap is rotated it will be raised or lowered.

The operation of my improved burner will be readily understood by those skilled in the art. The gas flows from the gas-supply tube 1 through the passages 3 into the upper part of the cap 6 and from the latter escapes

through the port 8 around the conical valve 4 into the burner-tube 10. At the same time air is admitted to the burner-tube through the inlets or ports 13 and commingles with the gas. To regulate and proportion the admission of the gas and air, it is only necessary to turn the burner-tube, which movement, as before described, will rotate the sleeve 9 and cap 6 and raise or lower the same. If the burner-tube be turned in one direction, the sleeve and cap will be raised, increasing the area of the port 8 about the conical valve, and thereby increasing the admission of gas to the burner-tube, and the upper end of the sleeve 9 will simultaneously partially cut off or diminish the area of the air-inlets 13, thus decreasing the admission of air to the burner-tube. By turning the burner-tube in the opposite direction it follows that the described operation will be reversed, increasing the admission of air and simultaneously decreasing the admission of gas.

I have shown the tongue formed on a sleeve 9, fixed on the cap 6; but I deem it within the scope of my invention to form or affix the projection that extends through the slot 14 in the burner-tube directly on the cap 6 and dispense with the sleeve 9. The construction described, however, is preferred, as the cap must in practice be made relatively thick or heavy in order to form the screw-threads therein, and hence in striking up the tongue therefrom it would be liable to break off. Moreover, the sleeve 9 forms a most efficient cut-off for regulating the area of the air inlets or ports 13 in the burner-tube. It will also be obvious that instead of forming a bead or collar 5 on the gas-supply pipe, on which the lower end of the burner-tube rotates, I may form an inwardly-projecting flange on the lower end of the burner-tube, which projects into an annular groove formed in the gas-supply tube.

In the arrangement herein shown and described the burner-tube is vertically immovable, and hence does not raise or lower the burner, with its mantle, glass chimney, and shade. It simply turns these parts, when the flow of gas and air is regulated.

The burner constructed as described has few parts, can be manufactured at small cost, is simple to understand by the user, as the regulation of the air-ports is plainly visible at all times, and the air is admitted directly to the burner without being intercepted in any manner, thus imparting a great inspirating force to the gas-jet.

Having described my invention, what I claim is—

1. In a Bunsen burner, the combination with a gas-supply tube and the valve thereon, of a regulating-cap threaded on the gas-supply tube and encircling said valve, a vertically-immovable burner-tube rotatably mounted on the gas-supply tube and provided with air-inlet ports, and means imparting the rotary movement of the burner-tube when the latter

is turned to the said cap to raise and lower the latter, substantially as described.

2. In a Bunsen burner, the combination with a gas-supply tube and the valve thereon, of the regulating-cap threaded on the gas-supply tube and encircling said valve, a vertically-immovable burner-tube rotatably mounted on the gas-supply tube and provided with air-inlet ports, and means connecting the burner-tube and cap in such manner that when the burner-tube is turned the cap will be raised or lowered, substantially as described.

3. In a Bunsen burner, the combination with a gas supply tube and the valve thereon, of the regulating-cap threaded on the gas-supply tube and encircling said valve, a vertically-immovable burner-tube rotatably mounted on the gas-supply tube and provided with air-inlet ports, and a loose connection between the cap and burner-tube operating to cause the cap to turn with the burner-tube and thereby raise or lower said cap, substantially as described.

4. In a Bunsen burner, the combination with a gas-supply tube and the valve thereon, of the regulating-cap threaded on the gas-supply tube and encircling said valve, a burner-tube rotatably mounted on the gas-supply tube and provided with air-inlet ports, means for preventing vertical movement of said burner-tube, and means communicating the rotary movement of the burner-tube when turned, to said cap to raise or lower the latter, substantially as described.

5. In a Bunsen burner, the combination with a gas-supply tube and the valve thereon, of the regulating-cap threaded on the gas-supply tube and encircling said valve, a cylindrical sleeve fixed on the cap, a burner-tube rotatably mounted on the gas-supply tube and provided with air-inlet ports, means for preventing vertical movement of the burner-tube, and a projection on the sleeve extending into a vertical slot in the burner-tube, substantially as described.

6. In a Bunsen burner, the combination with a gas-supply tube and a tapered valve thereon, of the cap threaded on the gas-supply tube and provided centrally in its top with a port through which said valve projects, a cylindrical sleeve fixed on the cap and extending at its upper end to near the top of the cap, a burner-tube rotatably mounted on the gas-supply tube and provided with air-inlet ports arranged opposite said valve, means for preventing vertical movement of the burner-tube, and a projection on the sleeve extending into a vertical slot in the burner-tube, the said sleeve being snugly fitted in the burner-tube and operating when raised and lowered to diminish and increase the operative area of the air-inlet ports in the burner-tube, substantially as described.

7. In a Bunsen burner, the combination with a gas-supply tube and a tapered valve thereon, of the cap threaded on the gas-supply tube

and provided centrally in its top with a port through which said valve projects, a cylindrical sleeve fixed on the cap, a burner-tube rotatably mounted on the gas-supply tube
5 and provided with air-inlet ports, a circumferential bead on the gas-supply tube, an annular inwardly-turned flange on the bottom of the burner-tube, said flange embracing the bead and preventing vertical movement of
10 the burner-tube, and a projection on the sleeve extending into a vertical slot in the burner-tube, substantially as described.

8. In a Bunsen burner, the combination with a gas-supply tube having a passage there-
15 through for the gas, of a regulating-cap threaded on said gas-supply tube and also having a passage therethrough for the gas, a

valve cooperating with one of said passages for regulating the flow of gas, a vertically-immovable burner-tube rotatably mounted on
20 the gas-supply tube and provided with air-inlet ports, and means connecting the burner-tube and cap whereby a rotary movement imparted to said tube will be communicated to the cap to raise and lower the latter, sub-
25 stantially as described.

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

CLARENCE M. KEMP.

Witnesses:

ANNA E. GRIESE,

ANNA S. REYNOLDS.