

No. 702,258.

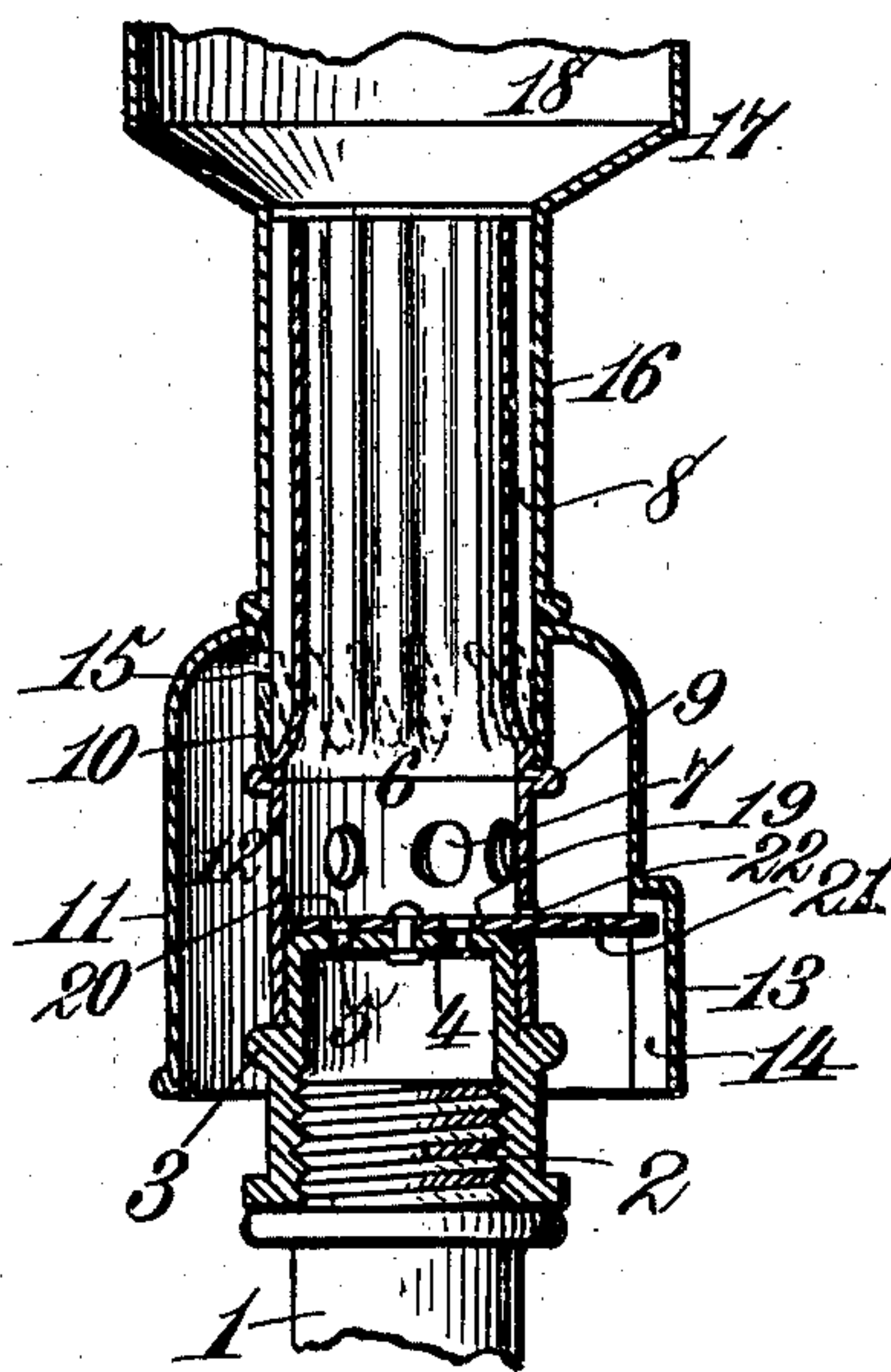
Patented June 10, 1902.

C. W. TAYLOR.  
BUNSEN BURNER.

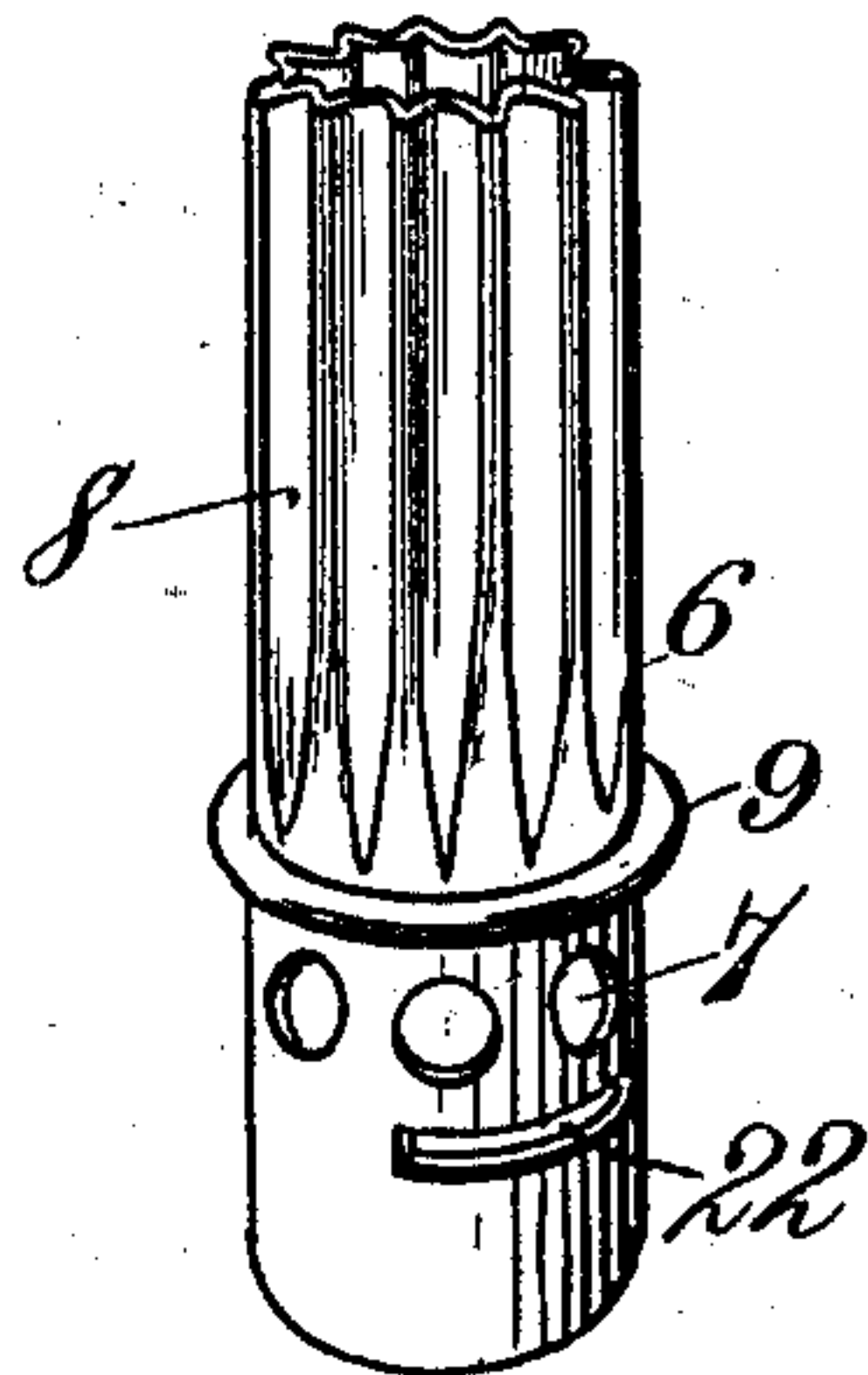
(Application filed Apr. 7, 1902.)

(No Model.)

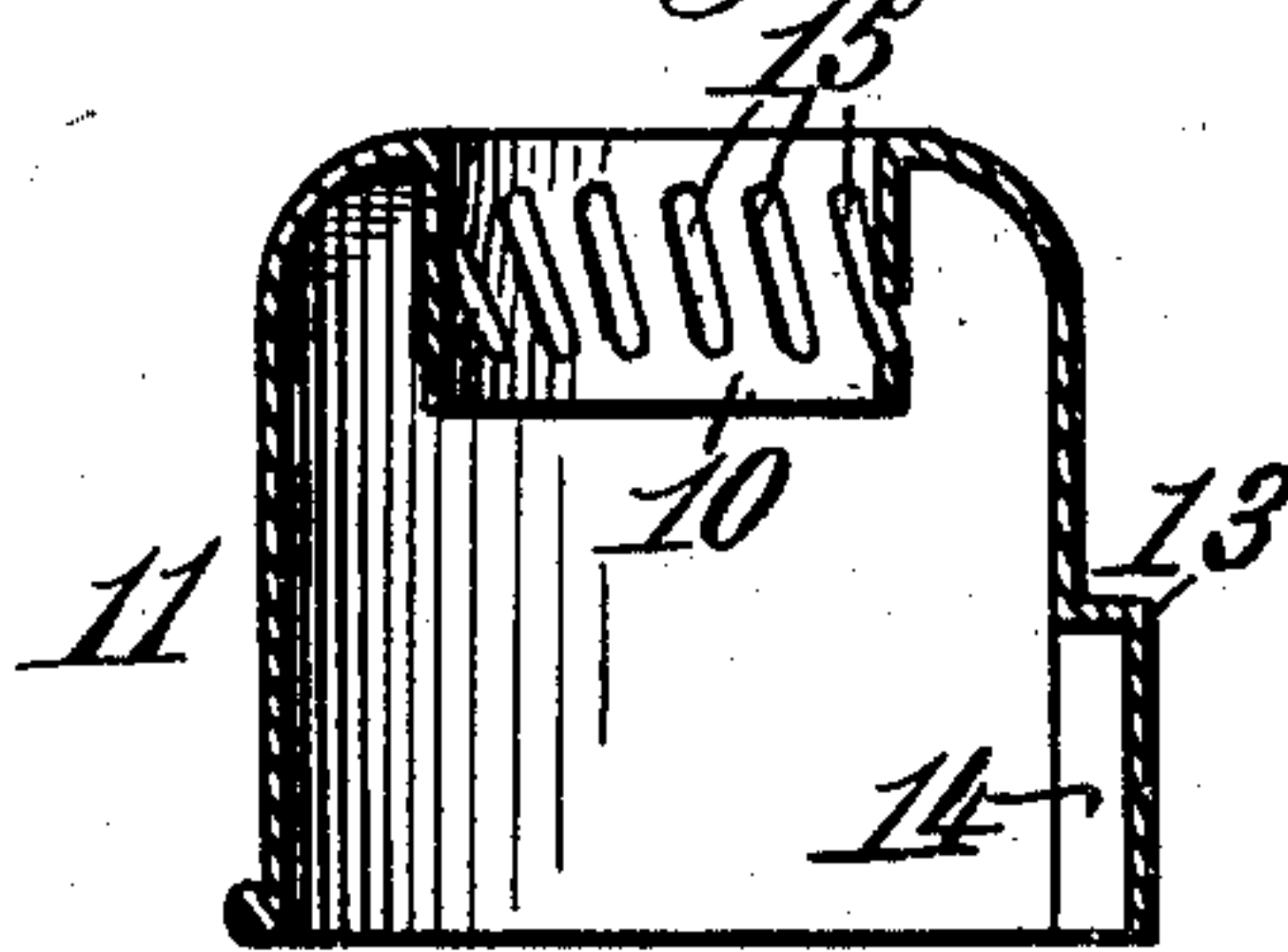
*Fig. 1.*



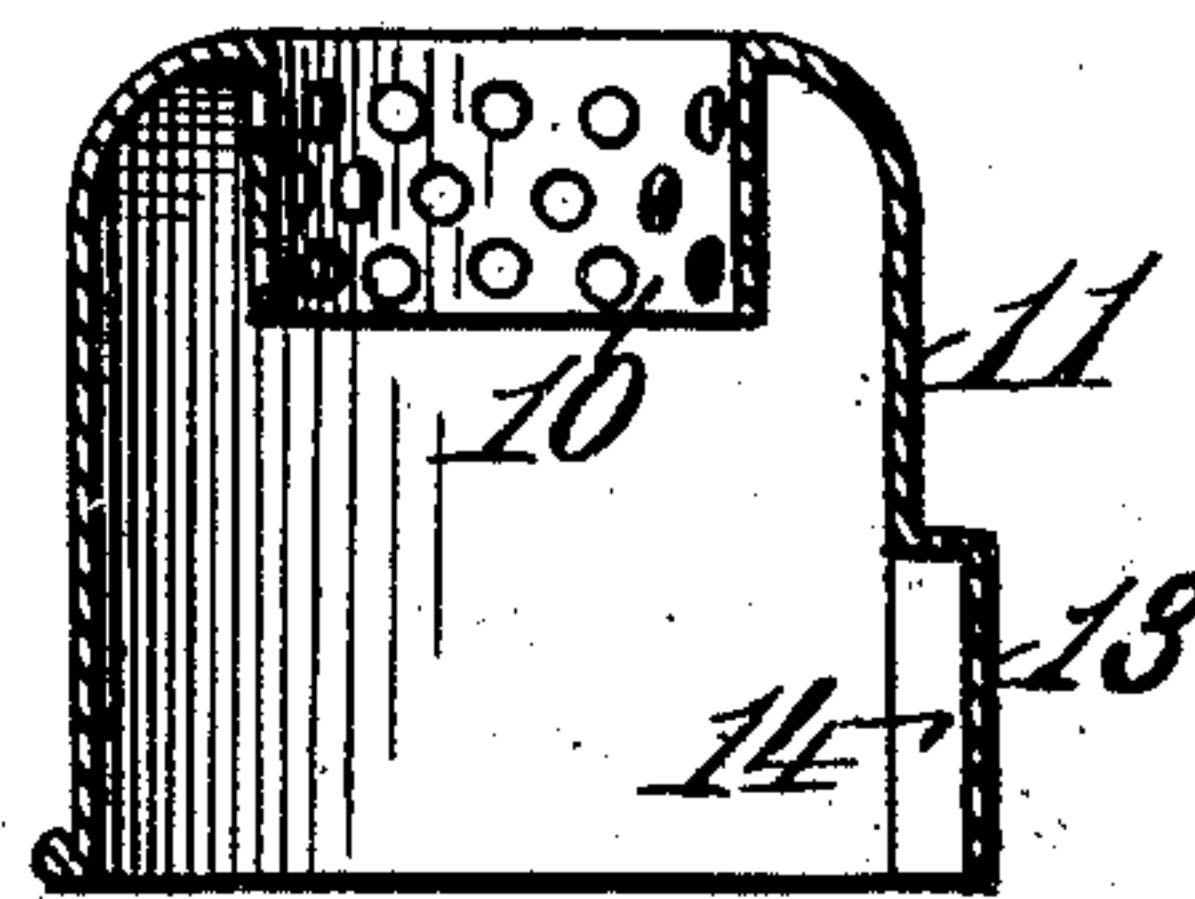
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses.  
*Robert G. Smith*  
*J. B. Keefe*

Inventor.  
*Clarence W. Taylor*  
By *James L. Norris*  
*Atty.*



# UNITED STATES PATENT OFFICE.

CLARENCE W. TAYLOR, OF SIOUX CITY, IOWA.

## BUNSEN BURNER.

SPECIFICATION forming part of Letters Patent No. 702,258, dated June 10, 1902.

Application filed April 7, 1902. Serial No. 101,720. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE W. TAYLOR, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented new and useful Improvements in Bunsen Burners, of which the following is a specification.

This invention relates to certain new and useful improvements in Bunsen burners adapted for use in incandescent gas-burners; and the object thereof is to construct a burner of the Bunsen type with air passages or channels for conducting air to the gas-and-air-mixing chamber of the incandescent burner to admix with the incoming gas and air from the burner-tube, these channels being independent of the air-inlets arranged in the burner-tube for supplying air to the gas as it enters the tube from the gas-supply or, in other words, constructing a burner-tube in such a manner as to supply sufficient air to the incoming gas at two points to obtain a proper mixture of the gas and air for preventing the carbonizing of the mantle ordinarily employed in incandescent gas-burners.

A further object of the invention is to provide means for regulating the supply of air to the independent passages or channels formed in the burner-tube and to also provide means to direct the air for supplying the same to the passages or channels.

A further object of the invention is to construct the burner-tube with permanently-open air-inlets, dispensing thereby with the ordinary air-regulating shutter.

With the above and other objects in view the invention aims to construct a Bunsen burner which shall be simple in its construction, strong, durable, efficient in its operation, and comparatively inexpensive to manufacture; and to this end it consists of the novel combination and arrangement of parts hereinafter more specifically illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, and in which—

Figure 1 is a central vertical section of my

improved Bunsen burner with the mixing-tube attached thereto. Fig. 2 is a detail view of the burner-tube. Fig. 3 is a vertical sectional view of the hood and sleeve, and Fig. 4 is a like view of a modified form of hood and sleeve.

Referring to the drawings by reference-numerals, 1 denotes a gas-supply pipe, to which is secured in any suitable manner the nipple 2, formed with an annular peripheral flange 3. The top of the nipple 2 has secured thereto in any suitable manner a diaphragm 4, provided with perforations or slots 5 for the passage of gas from the source of supply through the nipple 2 to the burner-tube 6. The burner-tube 6 is adapted to be mounted upon the nipple and rests upon the flange 3 and is provided slightly above the nipple with a series of air-inlets 7, which are permanently open at all times. The burner-tube above the inlets 7 is corrugated or fluted to form a series of air-passages 8. The corrugations extend from slightly above the air-inlets to the upper end of the tube. The tube is further provided at the bottom of its corrugated portion with an annular bead 9 for supporting the sleeve 10, having integral with its upper end a downwardly-extending hood 11. The hood 11 is of such diameter that it projects away from the sleeve 10 and tube 6, so as to form an air-space 12. The hood 11 is provided near its lower end with an offset 13, forming a vertical groove 14, the function of which will be hereinafter described. The sleeve 10 is formed throughout with a series of diagonally-extending slots 15, adapted to register with the air-passages 8, formed by the burner-tube. Instead of the slots 15 the sleeve 10 may be perforated in any desirable manner. The slots 15 are adapted to regulate the passage of the air from the air-space 12 to the air channels or passages 8, formed by the burner-tube. Such regulation is obtained by rotating the hood 11. Mounted upon the hood 11 is the mixing-tube 16, its upper end enlarged, as at 17, forming the gas-and-air-mixing chamber 18. The air channels or passages 8 are adapted to communicate with the lower end of the gas-and-air-mixing chamber 18, so that additional air will be fed to the gas and air as it leaves the burner-tube and enters into the gas-and-air-mixing chamber 18.



Mounted upon the top of the nipple 2 and within the burner-tube 6 below the air-inlets 7 is a gas-regulating plate 19, provided with a suitable opening or openings 20, adapted to register with the openings or slots 5 in the diaphragm 4. The opening or openings 20 in the plate 19 is or are so arranged that one or more or all of the openings or slots 5 will be opened or closed when the plate 19 is rotated upon the nipple 2 to bring the opening or openings 20 into or out of alinement with the openings or slots 5, thereby regulating the supply of gas to the burner. The plate 19 has formed integral therewith an outwardly-extending stud 21, which projects through a slot 22 in the burner-tube and extends into the groove 14, formed by the offset 13 in the hood 11, so that when the hood is rotated it will cause the operation of the plate.

The hood 11 is, as above stated, adapted to operate the plate 19 for regulating the supply of gas to the burner-tube, and it also when rotating regulates the supply of air through the slots 15 to the air passages or channels 8.

Furthermore, constructing the hood in the manner set forth causes the air to be directed to the slots 15. By the foregoing arrangement the air is admitted to the burner-tube through the inlets 7 and is also supplied to the mixing-chamber through the channels and which, as before stated, is at a point where the gas and air emerge from the burner-tube, consequently establishing two points where the gas will be diluted with air—for example, at near the bottom of the burner-tube and at the lower part of the mixing-chamber—thus supplying a sufficient quantity of air to prevent carbonizing of the mantle ordinarily employed in incandescent gas-burners, and it is thought the many advantages of such a construction can be readily understood from the foregoing description taken in connection with the accompanying drawings.

The subject-matter disclosed and not claimed in this application is disclosed and claimed in my concurrent applications, Serial No. 99,001, filed March 19, 1902, and Serial No. 101,721, filed April 7, 1902.

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

1. In combination, a burner-tube having a portion of its length corrugated to form a series of air-passages, and means mounted upon the burner-tube for regulating the supply of air to said passages.

2. In combination, a burner-tube having a portion of its length corrugated to form a series of air-passages, a regulating-plate mounted in said burner-tube, and means mounted upon the burner-tube for regulating the supply of air to the said passages and adapted to engage the said plate for operating it.

3. In combination, a burner-tube having a portion of its length corrugated to form a series of air-passages, a perforated sleeve mounted upon the burner-tube and adapted to have its perforations register with the said passages, and a hood integral with the sleeve for rotating it to regulate the supply of air through the perforations of the sleeve to the passages.

4. In combination, a burner-tube having a portion of its length corrugated to form air passages or channels, a perforated rotatable sleeve mounted upon the burner-tube and adapted to have the perforations thereof register with the said air passages or channels for regulating the supply of air thereto, a gas-regulating plate arranged in the burner-tube, and means connected with the sleeve for rotating it and engaging with the plate for simultaneously operating it with the said sleeve.

5. In combination, a burner-tube provided with air-inlets and corrugations to form air passages or channels, and means mounted thereon for regulating the supply of air to the said channels or passages.

6. In combination, a burner-tube provided with air-inlets and corrugations to form air channels or passages, a regulating-plate for the supply of gas arranged in the said tube, and means mounted upon the tube for regulating the supply of air to the channels or passages and for simultaneously with such regulation, operating the said plate.

7. In combination, a burner-tube provided with air-inlets and corrugations forming air passages or channels, a rotatable sleeve having diagonally-extending slots registering with the said passages or channels for supplying air thereto, and means for rotating the said sleeve for regulating the passage of air through said slots to said channels.

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

CLARENCE W. TAYLOR.

Witnesses:

T. J. STEVENSON,  
E. G. MAXON.