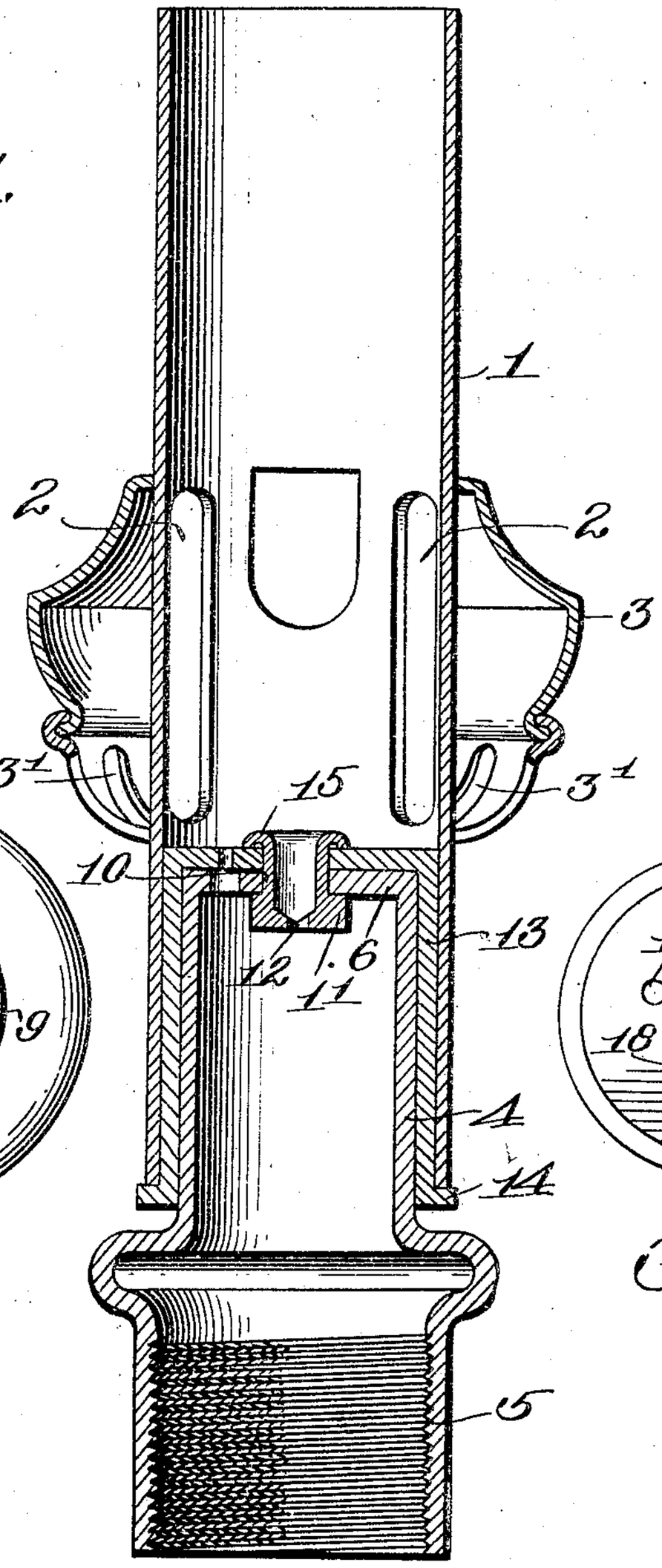
No. 788,382. PATENTED APR. 25, 1905.

C. W. TAYLOR.

GAS REGULATING BURNER.

APPLICATION FILED OCT. 23, 1902.

Fig. 1.



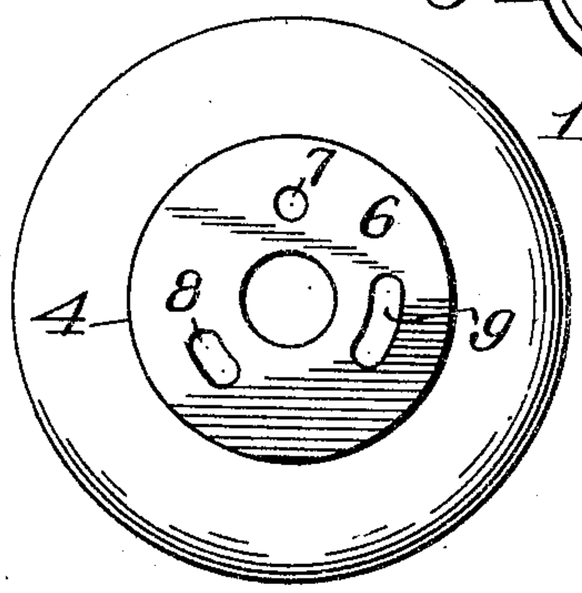


Fig. 2.

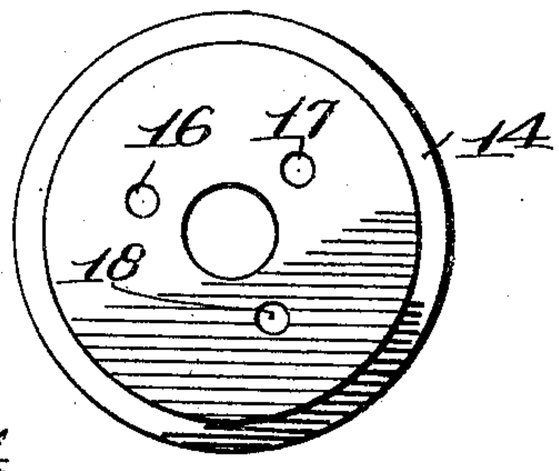
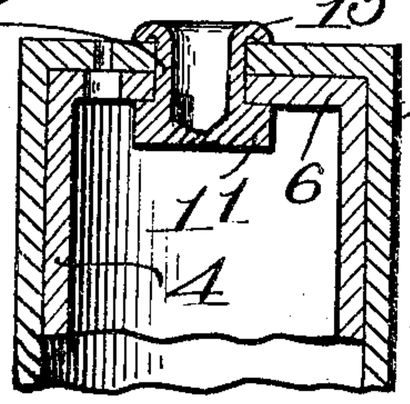


Fig. 3

Fig. 4.



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No. 788,382. Patented April 25, 1905.

UNITED STATES PATENT OFFICE.

CLARENCE W. TAYLOR, OF SIOUX CITY, IOWA.

GAS-REGULATING BURNER.

SPECIFICATION forming part of Letters Patent No. 788,382, dated April 25, 1905.

Application filed October 23, 1902. Serial No. 128,488.

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 Gas-Regulating Burners, of which the following is a specification.

This invention relates to certain new and useful improvements in gas-regulating devices for burners, particularly burners of the Bunsen type.

The invention aims to provide a gas-regulating device for gas-burners with or without a permanent opening for the minimum flow of gas and, further, provided with means when operated adapted to regulate the supply of gas.

The invention further aims to construct a gas-regulating device for gas-burners which shall be extremely simple in its construction, strong, durable, efficient in its operation, and comparatively inexpensive to manufacture.

With this end in view the invention consists of the novel combination and arrangement of parts hereinafter more specifically described, 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 reference characters denote corresponding parts throughout the several views, and in which—

Figure 1 is a vertical central sectional view of the device, showing the same provided with a permanent opening for the minimum flow of gas. Fig. 2 is a detail of the coupling. Fig. 3 is a detail view of the regulating-thimble, and Fig. 4 is a sectional detail showing the connecting means beween the thimble and the gas-coupling closed.

The regulating device is shown as applied to a Bunsen burner, and, referring to the drawings by reference characters, 1 denotes the burner-tube, which is rotatable and provided with the lateral air-inlets 2. The burner-tube 1 has fixedly secured thereto in any suitable manner a hood 3, acting as a shield for the air-inlets 2 and is also adapted to be used to rotate the burner-tube. The hood 3 at its bottom is provided with permanent air-inlets 3′.

The reference character 4 denotes a coupling-sleeve provided on its inner face near its lower end with the screw-threads 5, so that the coupling-sleeve 4 can be connected to a suitable gas-supply. The coupling-sleeve 4 at its top is closed by means of a diaphragm 6, provided with a plurality of openings 7 8 9. The opening 7 is the smallest of these openings, the opening 8 approximately twice as large as the opening 7, and the opening 9 approximately twice as large as the opening 8. Extending centrally through the diaphragm 6 and projecting above the same is a rivet 10, provided at its lower end with an annular flange 11, which engages the lower face of the diaphragm 6. The rivet 10 is fixedly secured to the diaphragm 6 and is provided with a gas-outlet passage 12, extending therethrough. The passage 12 may be of any suitable diameter; but, as shown, its lower end is of less diameter than its upper portion.

Mounted upon the coupling-sleeve 4 is a regulating thimble or cap 13. The wall of the thimble 13 is adapted to surround the sleeve 4 and terminates at its lower end in an annular flange 14, upon which rests the lower edge of the burner-tube 1. The flange 14 supports the burner-tube. The wall of the thimble or cap 13 is fixedly secured to the inner face of the burner-tube 1, so that when the burner-tube is rotated the regulating thimble or cap will be carried therewith. The portion of the rivet 10 which projects above the diaphragm 6 extends through the top of the thimble or cap 13 and is loosely secured thereto. The rivet 10 at its top is formed with a flange 15, which contacts with the upper face of the top of the cap or thimble and by such a construction connects the thimble or cap to the sleeve 4. The lower face of the top of the thimble contacts with the upper face of the diaphragm 6. As before stated, the rivet 10 connects the regulating thimble or cap to the sleeve; but this connection is such that the thimble can rotate upon the diaphragm 6. The thimble 13 has its top provided with a series of aper-

tures or openings 16, 17, and 18, which are so arranged in the top of the thimble or cap 13 in respect to the openings in the diaphragm 6 of the coupling-sleeve as to register one at a time with the openings in the diaphragm.

The construction of the rivet 10, which connects the thimble and coupling-sleeve together, is such that the passage of gas therethrough will never be interrupted. The flange 11 of the rivet 10 is larger than the flange 15, so as to increase the bearing-surface thereof, and the size of the flange 15 is such as to give the best results. The surface of the diaphragm 6 and lower face of the top of the thimble or cap 13 is preferably smooth. The diaphragm and top of the thimble are constructed of any suitable material and gas-tight. The regulating thimble or cap forms a support for the burner-tube, and the weight of the lamp will cause the top of the thimble and diaphragm to always be in close contact with one another.

In Fig. 4 a modified form of rivet is shown, which is indicated by the reference character 19, and consists of a solid body—that is to say, in this respect, that the rivet is not provided with a gas-outlet passage for the minimum supply of gas. Otherwise the construction of the regulating device is the same as that shown in the other figures of the drawings.

The device is operated as follows—that is to say, the structure shown in Fig. 1, the construction of the same being such that the minimum supply of gas through the hollow rivet 10 will not be interrupted: If it be desired to increase the supply of gas, the tube 1 is rotated through the medium of the hood 3, carrying the thimble therewith, so that an aperture or the apertures in the top of the thimble will be over an opening or openings in the diaphragm 6. Therefore an increased supply of gas to the burner will be obtained. If the supply of gas is to be decreased, the thimble is brought to its normal position—that is, closing the openings in the diaphragm 6.

In the construction shown in Fig. 4 the operation is the same as that in Fig. 1, except that there is no permanent minimum supply of gas. If the gas is to be supplied to the burner, the tube is rotated so that the opening or openings in the thimble will register with the openings in the diaphragm 6 of the coupling-sleeve.

By the foregoing construction and arrangement of a regulating device for gas-burner it will be evident that I have devised a simple and inexpensive one and one in which the supply of gas to a maximum quantity can be readily obtained, and it will furthermore be evident that changes, variations, and modifications can be resorted to without departing from the spirit of the invention or sacrificing any of its advantages, and I therefore do not wish to restrict myself to the details of construction hereinbefore described and as shown in the accompanying drawings, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed.

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

1. A gas-regulating device comprising a burner-tube, a coupling-sleeve provided with gas-supply outlets, means mounted upon the coupling-sleeve for regulating the flow of gas through the outlets of the coupling-sleeve and adapted to support the burner-tube, said means suitably connected to the burner-tube, and a hollow rivet connected to the coupling-sleeve and engaging the regulating means secured in the burner-tube for rotatably connecting the said regulating means and burner-tube to the coupling-sleeve.

2. A gas-regulating device comprising a burner-tube, a coupling-sleeve provided with gas-outlets, a regulating-thimble mounted upon and inclosing said coupling-sleeve and suitably connected to the burner-tube for supporting it, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, and a hollow rivet for rotatably connecting said burner-tube and thimble to the coupling-sleeve.

3. A gas-regulating device comprising a coupling-sleeve provided with a plurality of gas-outlets, a thimble mounted upon said coupling-sleeve and having its wall terminating in a supporting-flange, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, a hollow rivet for rotatably connecting the thimble with the coupling-sleeve, and a burner-tube mounted upon said flange and fixedly secured to the thimble so as to rotate therewith.

4. A gas-regulating device comprising a coupling-sleeve provided with a plurality of gas-outlets of different sizes, a thimble mounted upon said coupling-sleeve and having its wall terminating in a supporting-flange, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, means for rotatably connecting the thimble with the coupling-sleeve, and a burner-tube mounted upon said flange and fixedly secured to the thimble, so as to rotate therewith.

5. A gas-regulating device comprising a coupling-sleeve provided with a plurality of gas-outlets of different sizes, a thimble mounted upon said coupling-sleeve and having its wall terminating in a supporting-flange, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, a hollow rivet for rotatably connecting the thimble with the coupling-sleeve, and a burner-tube mounted upon said flange and fixedly secured to the thimble so as to rotate therewith.

6. A gas-regulating device comprising a coupling-sleeve provided with gas-outlets, a regulating means rotatably connected to and

mounted upon the top of, the said coupling-sleeve, and a burner-tube fixedly connected to said regulating means and supported thereby, said burner-tube rotating with said regulating means.

7. A gas-regulating device comprising a rotatable burner-tube, regulating means fixedly secured within said tube, a coupling-sleeve provided with a plurality of gas-outlets, and means extending above the said sleeve and engaging with the regulating means for rotatably connecting the said regulating means and the burner-tube to the sleeve.

8. A gas-regulating device comprising a burner-tube, a regulating-thimble, an apertured coupling-sleeve, and a hollow rivet for rotatably connecting the burner-tube and regulating means to the sleeve.

9. A gas-regulating device comprising in combination with a burner-tube, a regulating means fixedly secured within said tube, a coupling-sleeve provided with a series of gas-outlets regulated by said means, and means forming a minimum supply-inlet carried by the coupling-sleeve and engaging the regulating means for rotatably connecting said regulating means and said burner-tube to the coupling-sleeve.

10. A gas-regulating device comprising a burner-tube, a gas-regulating means fixedly secured to the burner-tube and moving therewith, a coupling-sleeve communicating with a gas-supply and provided with an apertured diaphragm, said regulating means adapted to regulate the passage of the supply of gas through the said diaphragm, and means carried by the said diaphragm and engaging with the said regulating means for rotatably connecting it and said burner-tube with the sleeve.

11. A gas-regulating burner comprising a rotatable regulating means for the gas-supply, a coupling-sleeve for supporting said regulating means, and means forming a permanent opening for the minimum supply of gas connected to said regulating means and said sleeve, said connecting means adapted to permit of the rotation of said regulating means upon said sleeve.

12. A gas-regulating device comprising a coupling-sleeve provided with gas-supply openings, means mounted upon the coupling-sleeve and provided with openings of different sizes for regulating the supply of gas through the openings in the coupling-sleeve, and means carried by the coupling-sleeve for rotatably connecting the said regulating means thereto, said connecting means forming a permanent opening for the minimum gas-supply.

13. A gas-regulator comprising a tubular stem, provided with openings and a rotatable thimble seated on said stem and also provided with openings adapted to register with the openings in the tubular stem, one set of said openings remaining in permanent alinement, the relative positions of the other openings in the two parts being variant.

14. In a burner of the class described, a coupling having a fluid-outlet, a fluid-regulator for said outlet, and an apertured pivot member for said fluid-regulator.

15. In a burner of the class described, a coupling having a plurality of fluid-outlets and an apertured projection, the aperture of which communicates with the interior of the coupling, and a fluid-regulating sleeve inclosing the coupling and turnable upon said apertured projection as a pivot.

16. In a burner of the class described, the combination of a coupling having a central outlet and a plurality of outlets arranged in annular order about the central outlet, said coupling having an apertured projection, a fluid-regulator arranged to turn upon said projection as a pivot and having a series of perforations also arranged in annular order, and adapted to register with said annular outlets, and a burner-tube inclosing said regulator and connected thereto.

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

CLARENCE W. TAYLOR.

Witnesses:
PATRICK J. MCMAHON,
INA F. BRIGGS.