No. 800,019. PATENTED SEPT. 19, 1905.

J. P. B. SADTLER.

GAS BURNER.

APPLICATION FILED DEC. 17, 1904.

Fig. 1.

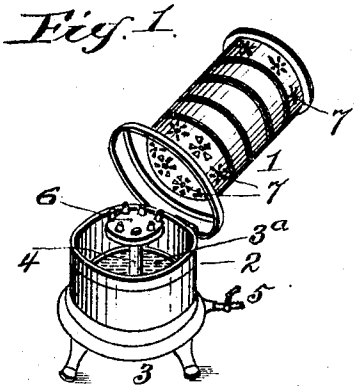


Fig. 2.

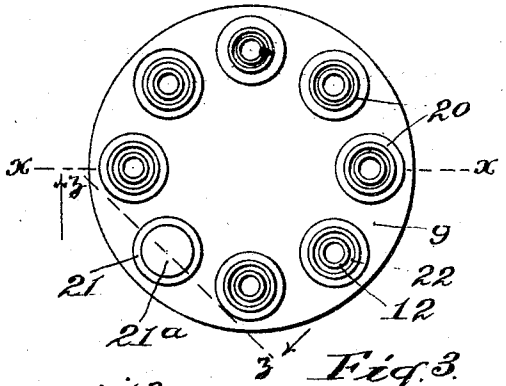


Fig. 4.

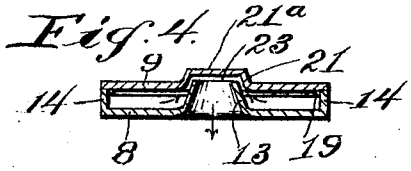


Fig. 3.

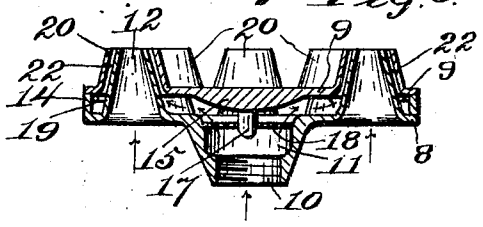


Fig. 5.

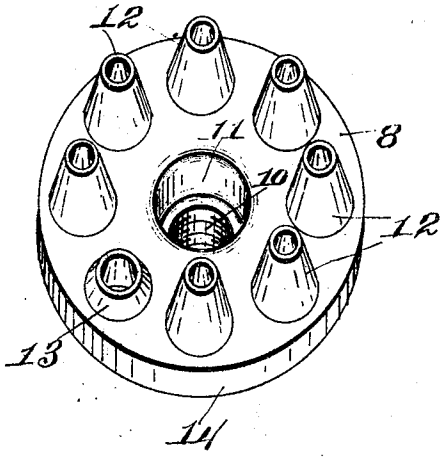
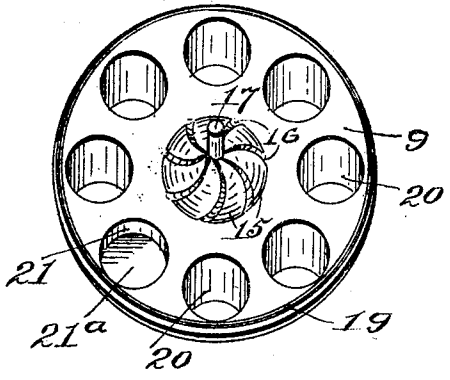


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN P. B. SADTLER, OF BALTIMORE, MARYLAND.

GAS-BURNER.

No. 800,019. Specification of Letters Patent. Patented Sept. 19, 1905.

Application filed December 17, 1904. Serial No. 237,271.

To all whom it may concern:

Be it known that I, JOHN P. B. SADTLER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

This invention relates to gas-burners, and pertains especially to the class of burners having overlapping or telescoping tubes.

The object of the invention is to provide a lighting and heating burner comprising two parts of such novel and peculiar construction and arrangement that they are held one to the other and in operative position without employing other elements or means to connect them.

A further object of the invention is to provide a lighting and heating burner having a loosely-fitting cap or cover held to the burner-base by base-tubes projecting into upwardly-extended sleeves of the cap or cover.

A still further object of the invention is to provide a burner, adaptable for gas or oil, of such compact arrangement that duplicate plates fitting loosely one upon the other and lying close together form a fuel-chamber, one of the plates having a series of tubes projecting upwardly from its inner face and the other plate has a series of sleeves projecting from its outer face and surrounding the tubes to form gas-passages and to hold the plates together.

The object still further of the invention is to provide a gas-burner for heating and lighting purposes having a series of sleeves projecting from a plate in the same direction with a series of tubes which telescope the sleeves, so as to constitute the only means of connecting the plates and form a gas-chamber, to provide one of the plates with a spreader, and to provide the spreader-plate with one or more closed tubes to deflect the flame downwardly onto a body of water.

Burners of this class have heretofore been constructed with tubes which project from the bottom of the burner into or through tubes projecting from the top of the burner; but the burner top and bottom are bolted or riveted together, so that there is no provision for contraction and expansion of the metal, and in consequence the plates crack and break, thereby rendering the burner useless and often beyond repair. Such burners invariably have a gas-chamber of too great depth, which permits a greater body of gas in the chamber than is any necessity for, and in consequence of such depth the burner must have deep side flanges to complete the chamber. Such burners, as far as known to me, permit the gas from a central bottom supply to discharge against the center of the burner top or cover, and the latter is without means for spreading or directing the gas to the jet-tubes. In such burners as direct the flame downwardly all the tubes or jets are employed for this purpose, and they have not one or more tubes to project a flame or flames downwardly combined with a series of jets or tubes to direct flames upwardly. It is therefore the purpose of this invention to overcome the various objections, disadvantages, and expensive construction of this class of burners, to simplify their construction, to increase the heat and light producing capacity, to diminish the size of the gas-chamber, to lessen the number of parts, and to produce a practical burner of such compact nature that greater heat and light power is produced with a reduction in size of the burner and a reduced capacity of gas-chamber, thereby reducing the cost of manufacture and lessening the consumption of gas.

In the accompanying drawings, forming part of this application, Figure 1 is a perspective view showing the burner applied to a heating drum or stove containing a basin of water. Fig. 2 is a top view of the burner. Fig. 3 is a section on the line $x\,x$, Fig. 2. Fig. 4 is a section on the line $y\,y$, Fig. 2. Fig. 5 is a perspective view of the bottom plate. Fig. 6 is a perspective view of the top plate inverted.

The same numeral references denote the same parts throughout the several views of the drawings.

The invention is here presented as applied to a heating-drum 1, hinged to a flange 2 of a base 3, containing a body of water 3^a and having a gas-supply pipe 4 standing centrally within the flange 2, and the base 3 is provided with a suitable gas-cock 5, to which may be attached a fixible tubing from a gas-pipe. The burner 6 is attached to the gas or stand pipe 4, so as

to be positioned, preferably, above the rim or flange 2 of the base and project into the drum 1, which has draft and light apertures 7. The burner being only about half the diameter of the base-flange and of the drum permits the latter to be swung on its hinge without interference.

The burner consists of only two parts—a bottom plate 8 and a top plate 9. The plate 8 has a conical screw-stem 10 depending centrally from the plate for coupling the burner to the stand-pipe 4, a central concavity 11 extending from the screw to the inner face of the plate, a series of conical tubes 12, formed on and projecting upwardly from said face and opening through the plate and with their upper ends open, a tube 13, shorter than the tubes 12 and projecting from said plate-face and opening through the latter, and an annular rim 14. The top plate 9 has formed on or applied to its inner face a series of spiral vanes 15, between which are a series of spirally-arranged grooves 16. These vanes and grooves constitute a gas spreader or distributer. This spreader is preferably cast in with the plate 9, so that the vanes converge from a circular line flush with the plate-face to a point central of the plate, and at this point a projection 17 may be made to center a wire-gauze 18 in or over the concavity of the bottom plate. A bead 19 is formed around the edge of the inner side of the plate 9 and fits within the annular rim of the bottom plate. Formed on and projecting vertically from the outer face of the plate 9 is a series of sleeves 20, having an open top and opening through the plate 9. A thimble or short tube 21, having a closed top end 21^a, is formed on the outer surface of the plate 9 between certain of the sleeves 20. A gas-passage 22 is left between the tubes and sleeves, and a like passage 23 is left between the thimble and its top and the short tube 13.

In assembling the plates the top one is simply dropped down over the tubes, so that the thimble will cover the short tubes. It will be seen that the plates thus assembled completes the burner ready for use, that the top plate is readily removable for cleaning or inspection without operating any other parts, and that the top plate is fixed against lateral displacement or even tilting by the sleeves and tubes.

It is obvious that the absence of bolts, screws, and rivets in this burner not only amounts to great economy, but permits unlimited contraction and expansion of the plates, which is highly essential in this class of burners.

It will be observed that the gas-supply pipe discharges into the concavity and against the distributer, so that all the jets are equally supplied with gas, and that the annular rim is only about one-fourth the height of the tubes, which reduces the depth of the gas-chamber, so that the latter acts more as a gas-passage than a chamber.

It will be seen that one jet is arranged to deflect its flame downwardly onto a body of water, which intensifies and moistens the heat, consumes all particles of combustion, and removes all odors usually emitted by such burners.

It is obvious that the application of the burner is not confined to a heating-drum, but may be used independently and in connection with other heaters or for special purposes, and that two or more mantles may be attached to certain of the jets to produce a cluster of lights of unusual power and brilliancy.

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

1. A gas-burner comprising two plates, one of which has a central concavity to receive the gas, a series of tubes projecting upwardly from the inner face of the plate, and a peripheral rim, and the other plate having a distributer or gas-spreader opposite said concavity, and a series of sleeves fitting within the tubes so as to leave a gas-passage therebetween.

2. In a gas-burner the combination, with the bottom burner-plate, a central screw-stem depending from an inner concavity, a series of tubes projecting upwardly from the inner face of the plate, and a rim forming the periphery of the plate, of the top burner-plate having a series of sleeves fitting over the tubes so as to leave a gas-passage therebetween and loosely seating this plate on the said rim, and a gas distributer or spreader central of the top plate and opposite said concavity to direct the gas to the said tubes.

3. In a gas-burner, the combination, of two plates forming a gas-chamber and having telescoping tubes, one of said plates having a gas-inlet to the chamber, and a gas-spreader on the inner face of the other of said plates opposite the said inlet and out of line with the tubes.

4. The combination, with a pair of plates having telescoping tubes and constituting a gas-burner, and a gas-inlet in one of the plates, of a gas distributer or spreader projected from the inner face of the other plate centrally toward the said inlet and having a series of spirally-arranged vanes and grooves radiating from its center.

5. The combination, with a pair of plates having telescoping tubes and constituting a gas-burner, one of the plates having a central concavity surrounding a gas-inlet, of a gas-spreader formed on the other plate and overhanging the said concavity and having alternate vanes and grooves radiating spirally from its center to distribute the gas equally to the tubes.

6. In a gas-burner, the combination, with a

pair of plates forming a gas-chamber and having open-end telescoping tubes pointing in the same direction to discharge flames upwardly from the chamber, of a tube projecting from one of the plates and having a closed end, and a tube projecting from the other plate and covered by said closed end with a passage therebetween for deflecting a flame downwardly from the said chamber through the covered tube.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOHN P. B. SADTLER.

Witnesses:

JACOB FRANCE,

HOWARD D. ADAMS.