(No Model.)

G. A. WILLIAMS.

HEATING ATTACHMENT FOR GAS BURNERS.

No. 457,543. Patented Aug. 11, 1891.

FIG. 1.

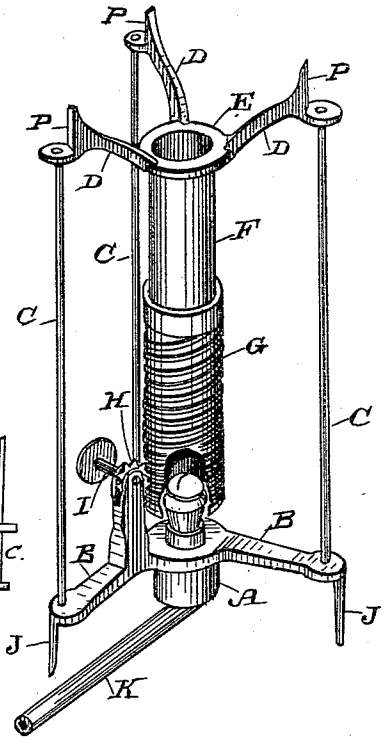


Fig. 5.

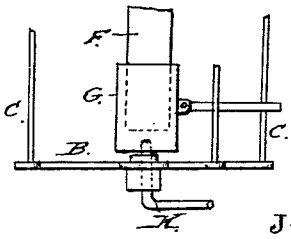


FIG. 3.

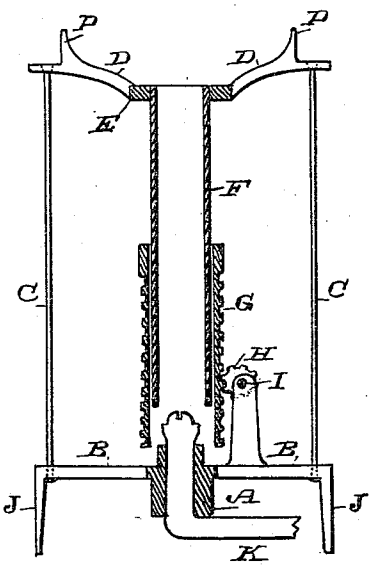


FIG. 4.

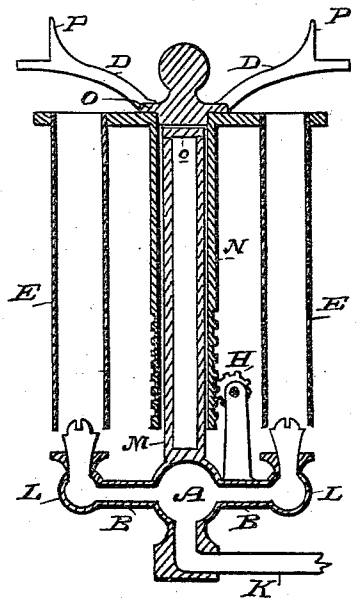


FIG. 2.

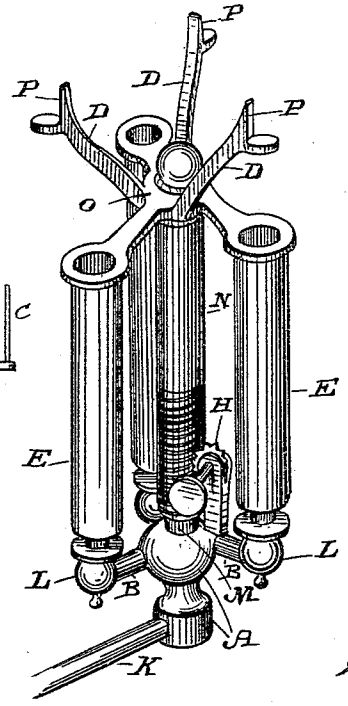
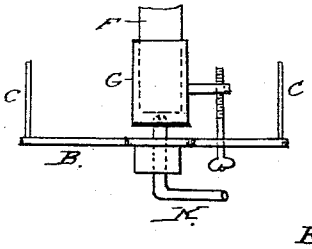


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE A. WILLIAMS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO FRANK JONES, OF SAME PLACE.

HEATING ATTACHMENT FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 457,543, dated August 11, 1891.

Application filed August 18, 1890. Serial No. 362,315. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. WILLIAMS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Heating Attachments for Gas-Burners; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which I call a "heating attachment for gas-burners." It consists of a supplemental tube suspended above the burner so that the gas may pass up through said tube, a means for admitting and regulating a supply of air to be used in connection with the gas, and in certain details of construction, which will be more fully described in the following specification.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of one form of my device, showing the air supply and regulating sleeve partially open. Fig. 2 shows the application of my device to a cluster of burners. Fig. 3 is a vertical section of the single burner. Fig. 4 is a vertical section of a cluster of burners. Figs. 5 and 6 are modifications to be referred to.

This device is especially useful to produce an intense heat to be used for the purpose of heating water or other articles from a gas-flame, and for these purposes is constructed in a variety of different ways.

In Fig. 1, A is a central cylindrical hub having a vertical opening through it of sufficient size to admit a gas-burner over which the hub fits sufficiently snug to hold itself steadily upon the gas-burner, the tip of which projects slightly above the upper surface of the hub. From this hub the arms B of a spider project radially and serve to support the vertical rods C, the lower ends of which are fixed in the ends of the spider-arms. To the upper ends of these rods is fixed a second spider or frame-work D, having a central ring E, within which is fixed the tube F. This tube depends from the ring to a point just above and surrounding the tip of the gas-burner, so that the gas, when allowed to escape, will flow up into the tube and be discharged from its upper end, where it may be ignited. This tube is made of any size which experience proves to be most suitable for the size of burner which supplies gas to it. Around the exterior of this tube a sleeve G is fitted to slide loosely up and down, and this sleeve may be moved in various ways. In the present case I have shown the exterior of the sleeve corrugated and engaged by the teeth of a small pinion H, having a shaft I and a disk at the outer end of the shaft by which it may be easily turned, so as to raise or lower the sleeve.

The sleeve may be operated by means of a screw passing vertically through one of the spider-arms and through a lug projecting from the side of the sleeve, as shown in Fig. 6, or it might be operated by a simple lever, or any other suitable device, as shown in Fig. 5, by which it could be raised or depressed, or the tube itself may be raised or depressed, the object being in any case to provide an opening at the lower end of the tube to supply air, to regulate the size of the opening, or to close it entirely. When lowered, the bottom of the sleeve rests upon the top of the hub A, making a sufficiently close joint to prevent the entrance of any air, and when the gas is allowed to escape it is ignited at the top of the suspended tube. If it is desired to increase the combustion of the gas and to give it greater heating-power, the sleeve is moved up slightly by means of any of the operating devices which are connected with it, and any desired amount of air will be admitted around the bottom of the tube to mingle with the gas and flow up through the tube with it, thus producing an intense combustion at the upper end of the tube. The amount of air which is admitted is easily regulated by adjusting the position of the sleeve. It will be noticed that the air is admitted preferably slightly below the point where the gas escapes from the burner, as this has proved to be the best method for thoroughly mixing the two and producing the best combustion.

In Fig. 1 I have shown points or spurs P projecting upwardly from the upper frame or spider D, these points being adapted to support a kettle at a suitable distance above the point of combustion, so that water or other

substance may be easily heated from the flame without the trouble of making up a fire.

If this device is to be used for jewelers or other similar purposes, the frame-work or spider D will be so arranged as to allow the combustion-tube to project above them, so as to leave the space above the tube unencumbered and free for any operation that would be carried on in connection with the flame. By suspending these combustion-tubes from the upper frame or spider little or no heat is conveyed downwardly to the lower spider, which will thus always remain sufficiently cool, so that it can be handled to remove it from the gas jet or burner when desired.

If it is desired to use this heater upon a table in connection with chandelier-lights, the spider B will be provided with downwardly-projecting legs J, and the gas-burner, which projects through the hub A, will be fixed in a support having a pipe K extending outwardly from it to one side and adapted to have a flexible tube connected with it, this flexible tube having the opposite end connected with any hanging burner, chandelier, bracket, or other convenient source from which gas may be supplied. When made in this manner, the apparatus can be allowed to stand upon any convenient table or support and the gas brought to it through a flexible tube, making it very convenient for the purposes of heating water, making tea, or other uses where a considerable flame and intense heat are needed.

In some cases it may be found desirable to increase the heating-power by the employment of a cluster of combustion-tubes. In such a case the hub A is made hollow and adapted to receive the gas, which is introduced into it from a connecting pipe or tube, and the arms B of the spider, being hollow, conduct the gas into the hollow ends L, (shown in Fig. 2,) each of which has a burner-tip on its upper surface. A central standard M extends upwardly and is surrounded by a movable tubular sleeve N, which is operated by a ratchet-wheel, screw, or other device, as before described. To the upper end of this tube is fixed a plate O, to the outwardly projecting ends or angles of which are secured the dependent tubes E, in a manner similar to the tube described in Fig. 1. As the central sleeve N has the plate *o* secured to its upper end and these tubes can be raised and depressed by the movement of the adjusting apparatus, it will be manifest that no supplemental sleeve will be necessary in this case, as the tubes may be moved downwardly so that each one incloses one of the burners, and the gas from the burner will escape up through the tube, being burned from the top, as before described. The amount of air admitted to these tubes for the combustion of the gas is readily adjusted by raising and lowering them in the same manner as described by the sleeve in Fig. 1.

A frame or spider D may be secured to the upper end of the central supporting-standard M and adapted to support a vessel for heating purposes.

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

1. A heating attachment for gas-burners, consisting of a tube the lower end of which is adapted to receive gas which escapes from the burner and which may be ignited at the upper end of the tube, a frame or spider to which the upper end of the tube is secured, rods supporting said frame and connected with a central hub to which is fitted the gas-burner, and a vertically-adjustable tube exterior of the first tube and regulating the supply of air to the burner, substantially as herein described.

2. A heating attachment for gas-burners, consisting of a hub or support fitted to the burner and having rods extending upwardly, a frame fixed to and supported from the upper ends of said rods, and a tube supported from the center of said frame with its lower end opening just above the gas-burner, so that gas may pass up through the tube from the burner, an air-supply regulating device, and a mechanism by which it is adjusted up or down so as to supply or cut off air, substantially as herein described.

3. A heating attachment for gas-burners, consisting, essentially, of the combination of a lower spider or frame forming a support for the gas-burner, an upper spider or frame joined to the lower spider or frame and having a tube depending from its center with its lower end opening just above the burner, a second tube surrounding the depending tube, and means for adjusting the same to regulate the air-supply, said upper spider or frame having spurs or points projecting from its upper surface and adapted to support a vessel, substantially as herein described.

4. A heating attachment for gas-burners, consisting of a support for the gas-burner, an upper frame or spider connected with the lower support, a tube having its lower end inclosing the tip of the gas-burner, and means for adjusting the tube, substantially as herein described.

In witness whereof I have hereunto set my hand.

GEORGE A. WILLIAMS.

Witnesses:
GEO. H. STRONG,
FRANK JONES.