

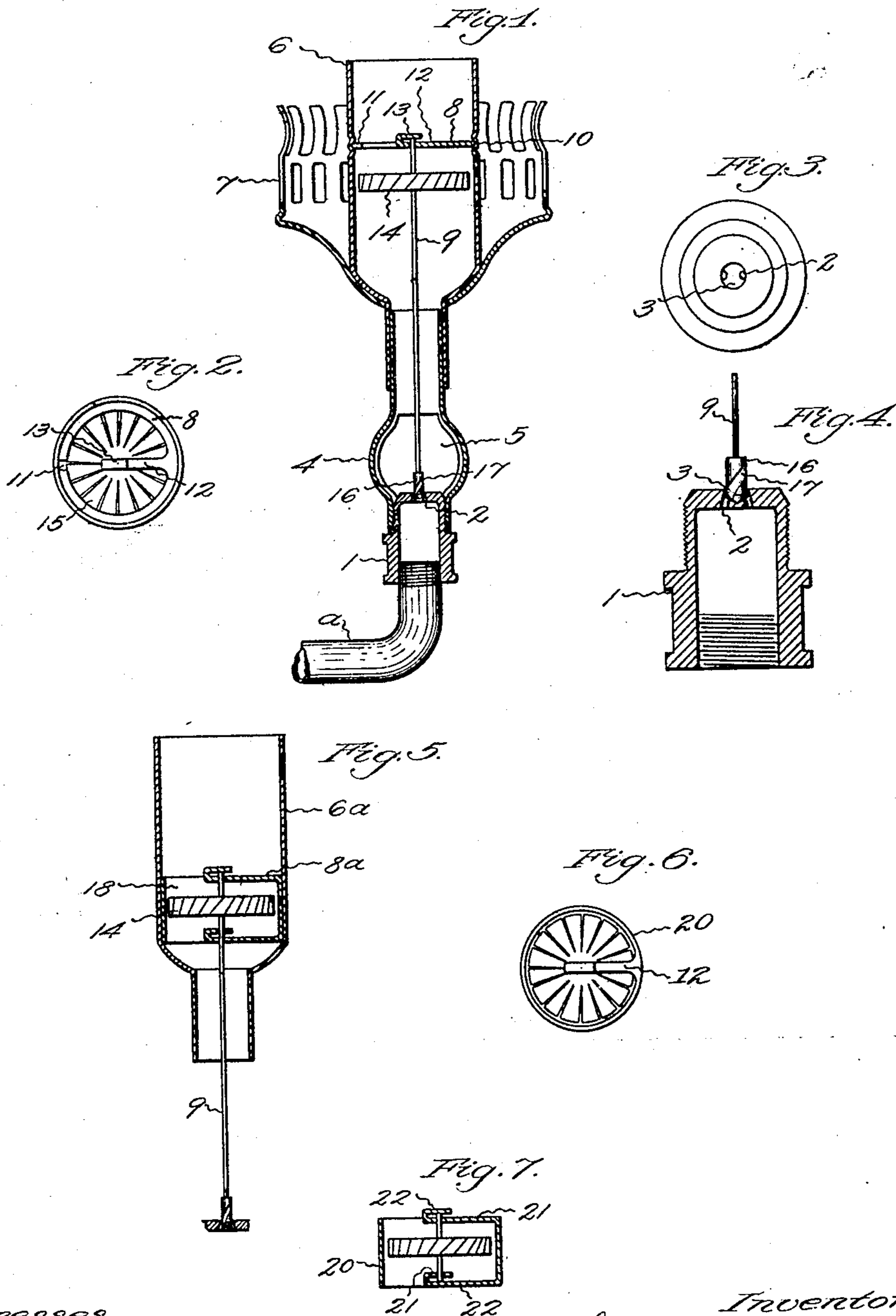
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GAS BURNER.

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904,772.

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Witnesses.

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UNITED STATES PATENT OFFICE.

HUGO A. GILLER, OF HARTFORD, CONNECTICUT.
GAS-BURNER.

No. 904,772.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HUGO A. GILLER, a citizen of the United States and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Gas-Burner, of which the following is a specification.

My invention relates more especially to that class of gas burners employing a Bunsen tube, and the object of my invention is to provide a burner of this class in which the air and gas shall be thoroughly mixed before reaching the flame; and a further object of the invention is to provide a burner in which a flame of maximum size may be obtained with the expenditure of a certain amount of gas; and a further object of the invention is to provide a burner in which the supply of gas thereto shall be self regulated.

One form of device in the use of which these objects may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a view in central longitudinal section of a burner embodying my invention. Fig. 2 is a top view of the same with the chimney gallery removed. Fig. 3 is a detail top view on an enlarged scale of the nipple. Fig. 4 is a detail view on enlarged scale of the regulator, the shaft being broken off, and in section through the nipple showing the manner of mounting the mixer shaft. Fig. 5 is a detail view in section through a burner showing a removable case for the mixer. Figs. 6 and 7 are respectively top and sectional views of a device showing the application of the invention to burners already constructed.

In prior devices of this class the gas is supplied to the tube through a nipple attached to the gas supply pipe, this nipple delivering the gas to the center of the tube, and the air is introduced from the outside, the two currents flowing upward to a point where they are delivered to the flame. While the gas and air are mixed to a certain extent in this form of device, yet the mixture is imperfect and as a consequence a certain amount of gas passes off without being burned. In the use of my invention this direct flow of gas and air is prevented and the gas and air are thoroughly mixed before they reach the point of location of the flame, or that point where they are delivered from the burner tip.

In the drawings the numeral 1 denotes a nipple, provided with the usual screw

threads serving as a means of attachment to the gas supply pipe. This nipple may be of ordinary construction as to its general form, having gas ports 2 at its upper end. In applying my invention, however, I form a recess 3 into which the ports 2 extend, this recess tapering from the side to a point located between the gas ports.

The numeral 4 denotes the Bunsen tube that may be secured at its inner end to the nipple 1 as by means of interengaging screw-threaded parts. This tube has the usual air openings 5 through its wall, and the upper end is slidably engaged with the burner 6, the latter fitting over the former as shown in Fig. 1 of the drawings. This burner is provided with the usual chimney gallery 7 of any ordinary form and construction.

The numeral 8 indicates a bearing ring for a mixer shaft 9. This ring may be supported in any desired manner, in the form shown a groove 10 being formed in the wall of the burner 6. This ring, if secured within a groove, may be split on one side, as at 11. A bearing bar 12 may be secured to the ring in any desired manner, in the form shown the bar extending from one side, the ring being stamped out from a piece of metal. This bar has an opening for the reception of the mixer shaft 9, and a guard 13 may be provided to prevent endwise movement of the shaft. This guard may be formed by bending the end of the bar backward, as shown in Fig. 1 of the drawings.

The mixer shaft 9 is supported at one end by the bar 12, as described, and a stop bearing for this shaft is formed in the nipple 1. A mixer 14 is secured to the shaft 9, this mixer preferably consisting of a disk with vanes 15 projecting radially from the central supporting part. This mixer is preferably located across the opening through the burner and the vanes are inclined at an angle to the plane of the disk, as shown in Fig. 1 of the drawings.

A regulator 16 is located at the inner end of the shaft, this regulator in fact being an enlargement of the shaft and provided with spirally extending grooves 17. These grooves may be formed in any desired number, the preferable construction, however, consisting of two grooves formed on diametrically opposite sides of the regulator. The end of the regulator is so formed that a practical point bearing is obtained serving as a step bearing for the shaft, the bottom

of the recess in the nipple and the end of the regulator being formed so that there shall be as little space as possible between the two, the end of the regulator and the bottom of the recess, however, not touching except at the central point or bearing.

In the operation of the device the gas passing through the ports 2 enters the spiral grooves 17 and assists in the turning movement of the mixer shaft. In this turning movement the ports 2 are alternately covered and uncovered, and the gas passes through the spiral grooves into the chamber in the Bunsen tube into which the air also enters. As the air and gas pass outward through the mixer 14 the latter is caused to rotate and the air and gas are thus given a whirling motion and are completely and thoroughly mixed before delivery to the flame, with a result that the mantle is thus thoroughly heated to incandescence, producing an extreme light throughout its whole surface. The gas and air are so thoroughly commingled that all of the fluid is consumed by the flame with the result that the extreme amount of both light and heat are obtained.

While I have shown and described my invention herein as applied to a burner more especially designed for producing light, yet it will be obvious that without other than mere mechanical skill the device may be readily applied to burners used for other purposes and I do not therefore limit myself to the construction of parts or arrangement as herein shown and described.

In Figs. 6 and 7 I have shown an application of the invention to devices or burners which have already been constructed. In thus applying the invention a case 20 is provided which may be removably placed in the burner 6, and this case has at opposite ends bearing bars 21 with guards 22, the bearing bar at one end consisting of the back-turned portion and the main part forming the guard. In this form of the device it is obvious that the regulator need not be employed.

While the regulator operates to intermittently obstruct the flow of gas, yet its movement will be so rapid that this intermittent shutting off of the gas is not noticed in the flame produced, the flame giving a practically steady light.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A burner having a chamber with an outlet therefrom, means for introducing fluid into said chamber, said means including a nipple with a fluid port therein, and means actuated by the gas flow for intermittently opening and closing said port.

2. In a burner having a chamber with an outlet therefrom, means for introducing fluid to said chamber and including a fluid port, means actuated by the gas flow for intermittently opening and closing said port, and means located within said chamber for actuating the opening and closing means.

3. A burner having a chamber with an opening therefrom, means for introducing fluid to said chamber and including a fluid port, a regulator for intermittently opening and closing said port, and means connected with the regulator and operated by the current through the chamber to operate the regulator.

4. A burner having a chamber with an outlet therefrom, means for supplying fluid thereto and including a fluid port, a regulator having an opening therethrough to intermittently register with said port, and means for moving said regulator to cover and uncover said port.

5. In a burner having a chamber with an opening therefrom, means for supplying air thereto, means for conducting fluid thereto and including a fluid port, a regulator having a spirally arranged passage to register with said port, and means for moving the regulator to cover and uncover said port.

6. In a burner having a chamber with an outlet therefrom, means for supplying air thereto, means for introducing fluid thereto and including a fluid port, a regulator for intermittently covering and uncovering said port, and a mixer operated by the movement of current through said chamber for operating said regulator.

7. A burner having a chamber with an outlet therefrom, means for supplying air thereto, means for introducing another fluid thereto and including a fluid port, means for regulating the flow of fluid through said port, and a mixer attached to the regulator and operated by the movement of a current of air through said chamber.

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Witnesses:

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