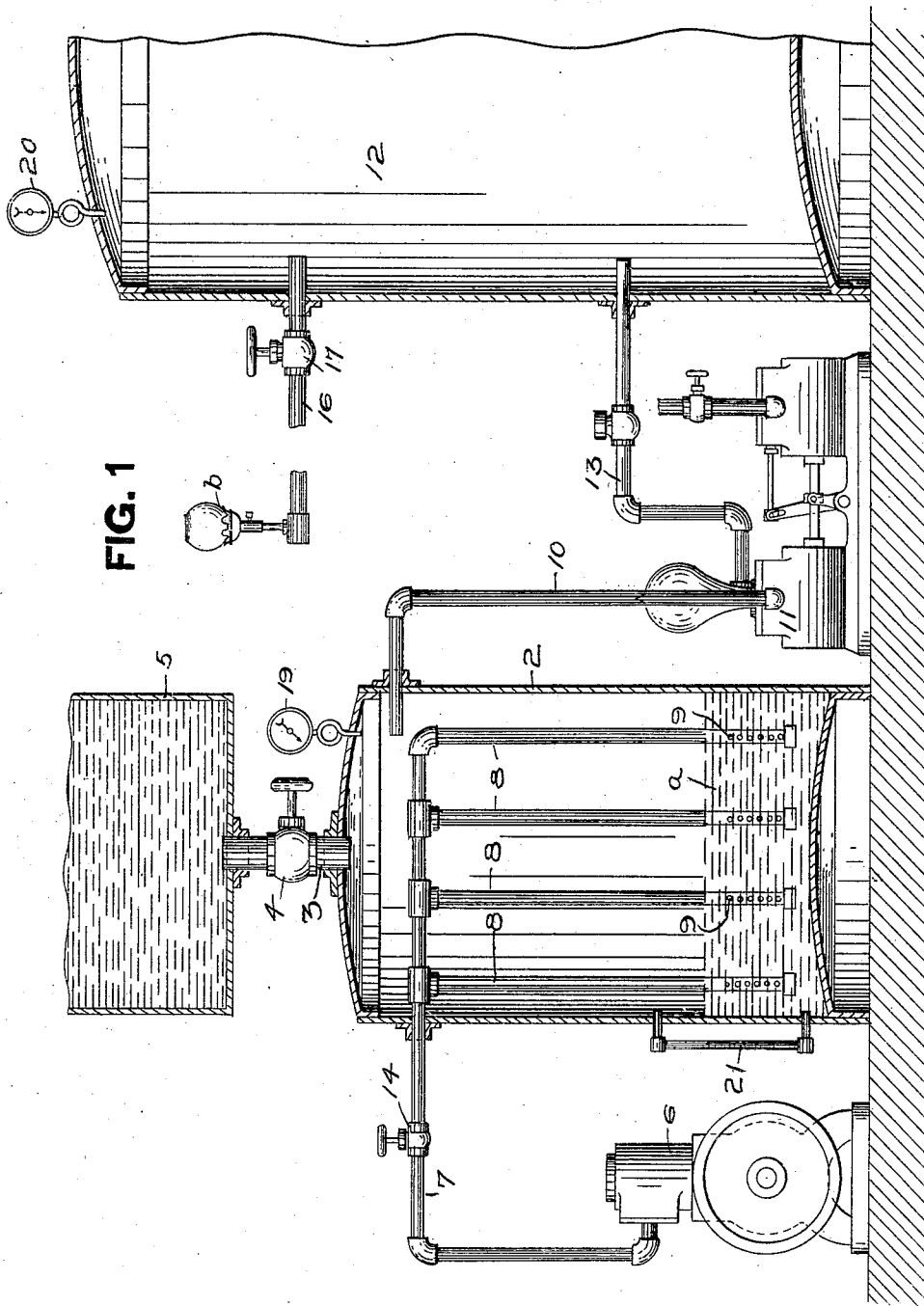


No. 874,705.

PATENTED DEC. 24, 1907.

W. T. SOLOMON.
INCANDESCENT GAS BURNER.
APPLICATION FILED JULY 31, 1906.

2 SHEETS—SHEET 1.



WITNESSES.

Arthur Keller
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INVENTOR.

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2 SHEETS—SHEET 2.

FIG. 2

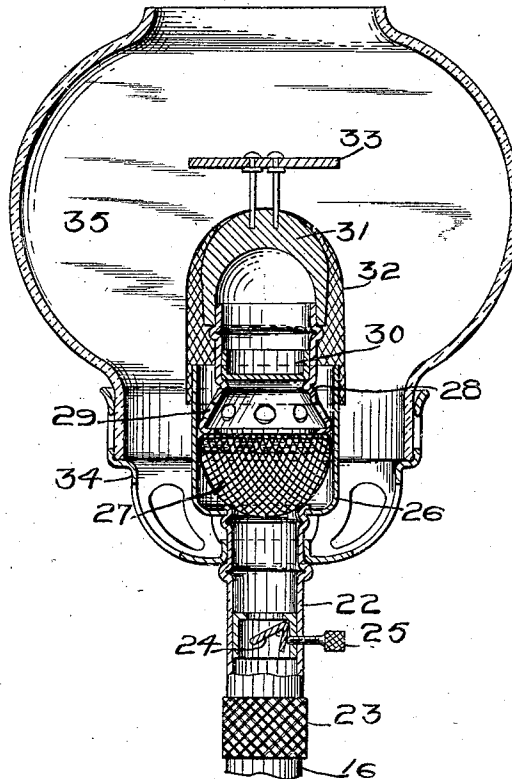


FIG. 3

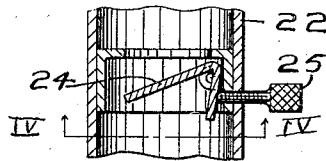
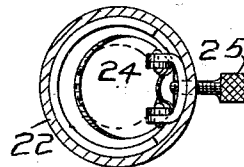


FIG. 4



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UNITED STATES PATENT OFFICE.

WILLIAM T. SOLOMON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO ROBERT C. HALL, OF
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INCANDESCENT GAS-BURNER.

No. 874,705.

Specification of Letters Patent.

Patented Dec. 24, 1907.

Application filed July 31, 1906. Serial No. 328,533.

To all whom it may concern:

Be it known that I, WILLIAM T. SOLOMON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Incandescent Gas-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of apparatus which may be employed in connection with my method; Fig. 2 is a vertical sectional view of the burner; Fig. 3 is a vertical sectional view showing the regulating valve; and Fig. 4 is an inverted cross-sectional view on the line IV—IV of Fig. 3.

Like symbols of reference indicate like parts wherever they occur.

My invention relates to improvements in incandescent gas burners and particularly to burners which will operate with alcohol which is vaporized by forcing a current of air or other suitable gas through a body of alcohol in a manner hereinafter described.

I will now describe my invention so that others skilled in the art may employ the same.

In the drawing 2 represents a tank adapted to contain alcohol, at the top of which tank is an inlet pipe 3 leading from a supply reservoir 5 and having a stop-cock 4. Adjacent to the tank 2 is an air-pump 6 having a pipe 7 leading into the body of the alcohol *a*. The bottom portion of the pipes 8 below the point at which the level of the alcohol normally exists, is provided with perforations 9 which allow the compressed air to escape in the body of the alcohol and act, not only as a means of vaporizing the alcohol, but also as an agitator to aid in this vaporization. Leading from the upper portion of the tank 2 is a pipe 10 which connects with the combined suction and force pump 11. This pump 11 is connected with the gas-tank or reservoir 12 by the pipe 13. The pump 11 serves to draw the alcohol vapor or gas from the tank 2 and to force it into the gas reservoir 12. Although I prefer to use the pump 11 in connection with the air-compressor 6, it is possible to dispense with the compressor and to place an inlet valve in the pipe 7 between the stop-cock 14 and the tank 2.

Leading from the upper portion of the gas reservoir 12 is a supply pipe 16 provided

with the stop-cock 17. This pipe 16 leads to the illuminating burner *b*, or to a series of such burners arranged at points where it is desired to burn the gas for the purpose of illumination. Suitable gages 19 and 20 are placed at convenient points to indicate the pressure. Suitable gages 21 may also be fitted on the tank 2 to indicate the amount of alcohol contained therein.

In order to burn the alcohol vapor or gas which may be produced by the apparatus I have described, I find it is necessary to cause combustion within a refractory light-producing chamber or mantle, from the interior of which atmospheric air is excluded, and I have shown in the drawings a burner which will permit the alcohol gas to burn under such conditions, although I do not, of course, desire to limit myself to the use of this particular burner. In Fig. 2 this burner is shown in vertical section, the pipe 16 leading either directly or by means of other pipes or gas mains from the reservoir 12, is connected to the bottom tube 22, of the burner *b* by a suitable sleeve or connection 23. This tube 22 is provided with a regulating valve 24 adapted to regulate the amount of gas supplied to the burner and adapted to be adjusted by the hand-screw 25 or other suitable device. The tube 22 opens into an imperforate cup 26, within which cup is a gauze screen and diffuser 27, above which is a lava-cap 28, the lower portion of which may be of the shape of the frustum of a cone and the upper portion of which is closed by the disk 30, and it is provided with outlet apertures 29 which are adapted to permit the passage of the alcohol vapor therethrough. Above the cap 28 and the disk 30, and fitting thereon is a lava button 31 which serves to support an incandescent mantle 32, which mantle extends down about the upper portion of the cup 28. Extending from the upper portion of the button 31 is a lava deflector 33. About the burner *b* is a suitable globe-support 34, resting in which is a globe 35.

The alcohol gas conducted by the pipe 16 passes into the cup 26 through the screen 27 out through the apertures 29 into the interior of the mantle 32 where, being ignited, it burns within the mantle about the lava within the refractory light-producing mantle, about the lava-cup 28 and the lava-button 31, producing an intensely clear, non-odorous and smokeless flame. An annular re-

fractory light-producing chamber is thus formed by the lava cup and button and the surrounding mantle. The deflector 33 serves to deflect the heat down upon the lava button 31 and prevents atmospheric air from interfering with the flame.

The advantages of my invention, which will be appreciated by those skilled in the art, result from the combustion of the gas within a refractory light-producing chamber from the interior of which free atmospheric air is excluded.

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

1. An incandescent gas-burner comprising an imperforate chamber, a refractory body surmounting the chamber having a frusto-conical lower portion provided with apertures for the passage of gas and an upper portion constituting a support for a refractory light-producing mantle, substantially as specified.

2. An incandescent gas-burner comprising

an imperforate chamber, a refractory body surmounting the chamber comprising a tubular portion having a frusto-conical base provided with apertures for the passage of gas, and a removable cap portion fitting over the tubular portion and constituting a support for a refractory light-producing mantle, substantially as specified.

3. An incandescent gas-burner comprising an imperforate chamber, a refractory body surmounting the chamber comprising a tubular portion having a frusto-conical base provided with apertures for the passage of gas, a disk or diaphragm closing the top of said frusto-conical base, and a removable cap portion fitting over the tubular portion and constituting a support for a refractory light-producing mantle, substantially as specified.

In testimony whereof, I have hereunto set my hand.

WILLIAM T. SOLOMON.

Witnesses:

JAMES K. BAKEWELL,
C. E. EGGERS.