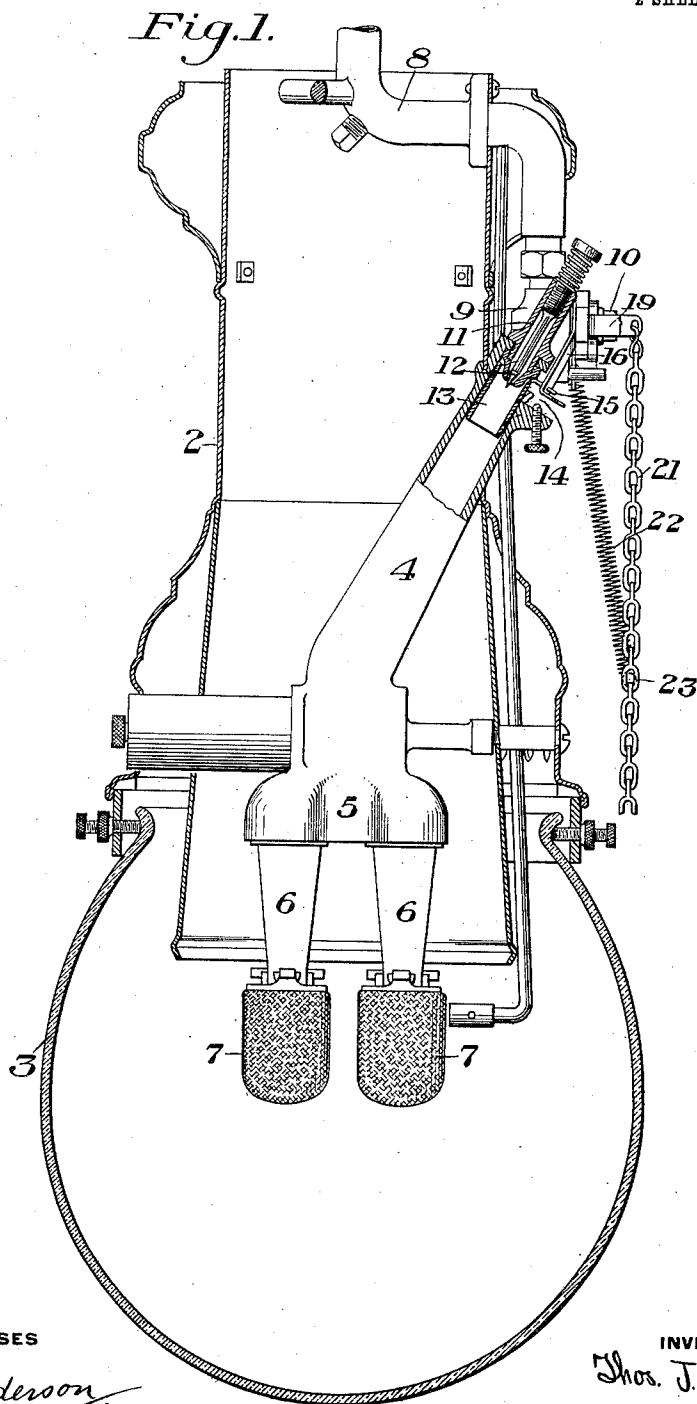


T. J. LITTLE, JR.
 INCANDESCENT GAS LAMP.
 APPLICATION FILED SEPT. 22, 1910.

1,031,013.

Patented July 2, 1912.

2 SHEETS-SHEET 1.



WITNESSES

R. A. Balderson
W. Farnes

INVENTOR

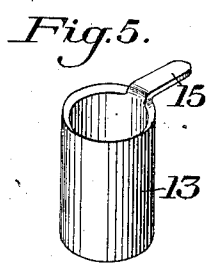
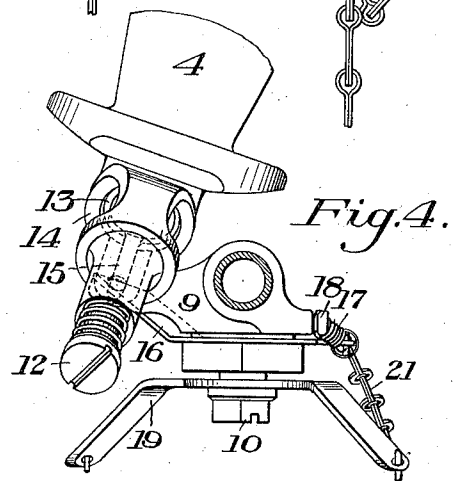
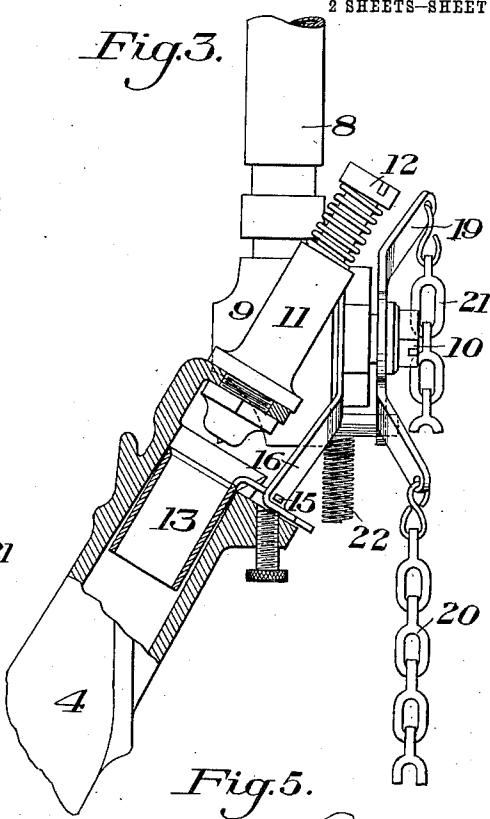
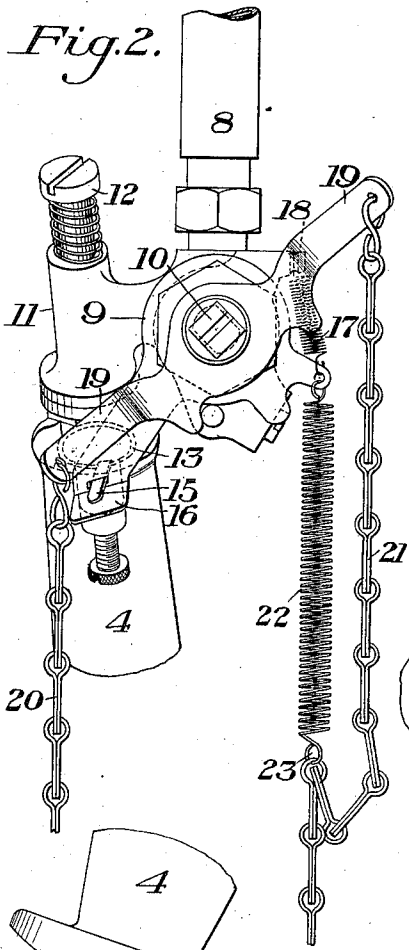
Thos. J. Little Jr.
by B. B. Bowers, Rymur C. Bowers,
his Attys.

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2 SHEETS-SHEET 2.



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R. A. Balderson
W. F. Amari

INVENTOR
Thos. J. Little Jr.
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UNITED STATES PATENT OFFICE.

THOMAS JAMES LITTLE, JR., OF WOODBURY, NEW JERSEY, ASSIGNOR TO WELSBACH LIGHT COMPANY, OF GLOUCESTER CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

INCANDESCENT GAS-LAMP.

1,031,013.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed September 22, 1910. Serial No. 583,198.

To all whom it may concern:

Be it known that I, THOMAS J. LITTLE, JR., of Woodbury, Gloucester county, New Jersey, have invented a new and useful Incandescent Gas-Lamp, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section showing one form of lamp having my invention applied thereto; Fig. 2 is a side elevation showing the actuating devices for the gas valve and air shutter or valve; Fig. 3 is a partial sectional view showing the same; Fig. 4 is a sectional plan view of the same; and Fig. 5 is a perspective view of one form of air shutter or valve.

My invention has relation to incandescent gas lamps, and more particularly to lamps of the manifold inverted type, although it may be applied to incandescent lamps of other types.

The invention has relation more particularly to a novel means for actuating the gas valve and the air regulating device or shutter so as to supply practically pure gas to the mantles on lighting, and thus positively eliminating all danger of flash backs.

Referring to the accompanying drawings, in which I have illustrated one form of my invention, the numeral 2 designates a casing of an incandescent gas lamp of the type above referred to; and 3 the globe.

4 is the mixing tube, which is shown as extending obliquely downward and inward through an opening in the side of the casing 3, and being of gradually enlarging cross-sectional area toward its lower end which opens into and carries the centrally located manifold 5, to which the burner tubes 6 are connected.

7 designates the usual inverted mantles.

8 is the gas supply pipe, which is connected to the valve casing 9 at its lower end.

10 is the valve spindle which carries a suitable valve within the casing.

11 is the gas jet tube, which is connected to the outlet of the valve chamber, and which extends downwardly into the upper end of the mixing tube 4, and which has the usual needle valve 12.

13 is the air regulating device or shutter, which is arranged to reciprocate within the

upper end portion of the mixing tube 4, being in the form of a hollow cylindrical sleeve, which, when raised to the position shown in Fig. 1, is arranged to close the air inlet opening 14 at the upper outer end of the mixing tube. The shutter has a projecting finger 15, which engages one arm of a lever 16, which is fulcrumed on the valve stem or spindle 10, the other arm of this lever being connected by a coil spring 17 with the valve casing at 18.

19 is a two-armed lever, which is fastened to the valve stem 10, a closing chain 20 being connected to one arm of the lever, and an opening chain 21 being connected to the other arm of said lever. A coiled spring 22 is connected at one end to the same arm of the lever 16, to which the spring 17 is connected, and at its other end is connected to the chain 21 at a point 23 so as to normally leave slack in that portion of the chain 21 between the point 23 and the lever 19.

The parts being in the position shown in Figs. 2 and 3, and it being desired to light the lamp, the chain 21 is pulled downwardly. The first pull on the chain, owing to the slack therein above described, will come upon the spring 22, and thereby actuate the lever 16 to raise the shutter 13 to its closing position, as shown in Fig. 1. A continued pull on the chain then actuates the lever 19, to open the gas valve. Inasmuch as the air shutter is moved to its closed position, before the gas valve opens, practically pure gas is supplied to the mantles on lighting, thus positively eliminating any danger of flash back. The air shutter is held closed as long as the lighting chain 21 is pulled. As soon as this chain is released, the coiled spring 17 will actuate the lever 16 to move the shutter downwardly to the open position shown in Fig. 3 and thus supply air to the mixing tube. It is desirable to have the spring 17 weaker than the spring 22, for the reason that a more prompt action is obtained in closing the air shutter when the lighting chain is first pulled, since the spring 22, being stronger than the spring 17, overcomes the tension of the latter immediately, thus closing the air shutter as soon as the lighting chain is pulled.

My invention overcomes the objections which have heretofore been experienced with mechanically operated air shutters which have been arranged to start with the air

shutter completely closed by being left so when the lamp is turned out and then opened when the lighting chain is pulled. In such devices, when the chain is pulled quickly, the effect of the mechanically operated air shutter is lost. With the present device, it is immaterial how quickly the chain is pulled, as there is always quite an interval between the time the chain is first grasped and the pulling motion is started, and the time when the chain is finally released, thus insuring that the air shutter is closed until after the gas valve has been opened to a substantial degree. As above stated, my invention is applicable to other types of lamps, and it will be manifest that various changes may be made in the connection between said shutter and the gas cock for causing the operation of the same in the manner described. It will also be obvious that the form and arrangement of the shutter may be widely varied.

It is immaterial for the purposes of my invention whether the air shutter is closed or opened when the lamp is not lighted, so long as the air shutter is closed before the gas valve starts to open, and said shutter remains closed until the gas valve has been opened to a substantial degree.

What I claim is—

1. In a gas lamp, a mixing tube having an air inlet and a gas inlet, a separate valve for each of said inlets, and a single operating device connected to both valves and having means whereby when it is actuated the valve controlling the air inlet will be closed to shut off the supply of air to said inlet before the valve controlling the gas inlet is opened to admit gas, substantially as described.

2. In a gas lamp, a mixing tube having an air inlet, an air-regulating device arranged to control said inlet, said air-regulating device being normally in position to leave the inlet open, a gas supply pipe having a control valve, means for actuating the control valve, and means in said connection whereby the first movement of said means closes said air-regulating device and the further movement actuates the control valve to admit gas to the mixing tube, substantially as described.

3. In a gas lamp, a gas supply pipe having a control valve, a mixing tube having an air inlet, an air-regulating device arranged to control said inlet, actuating connections connected to the control valve and the air-regulating device, and means in said connections whereby the actuating movement first closes the air-regulating device and then opens the control valve and retains the air-regulating device in its closed position until the actuating means is released, substantially as described.

4. In a gas lamp, a gas supply pipe having a control valve, a mixing tube having

an air inlet, an air-regulating device arranged to control said inlet, actuating connections connected to the control valve and the air-regulating device, means in said connections whereby the actuating movement first closes said regulating device and then opens the control valve and retains the air-regulating device in its closed position until the actuating means is released, together with means for mechanically moving the air-regulating device to its open position when the actuating means is released, substantially as described.

5. In a gas lamp, an air-regulating device, a gas supply pipe having a control valve, and actuating means for said device and the control valve arranged to first close the regulating device before the control valve is shifted to admit gas and then open the control valve to admit gas, the actuating means being arranged to permit the regulating device to be normally open when the control valve is open or closed, substantially as described.

6. In a gas lamp, a gas controlling valve, an air regulating device, a connection between the valve and the said device, and actuating means for the valve arranged to first move the regulating device to its closed position before the valve is shifted to admit gas and then open the valve, together with means for subsequently returning the air regulating device to its open position; substantially as described.

7. In an incandescent lamp, a gas control valve, an air regulating device, a lever connected to the air regulating device, a lever connected to the valve stem, a pull device connected to the last named lever, and a spring connecting the pull device with the first named lever; substantially as described.

8. In an incandescent lamp, a gas control valve, an air regulating device, a lever connected to the air regulating device, a lever connected to the valve stem, a pull device connected to the last named lever, a spring connecting the pull device with the first named lever and a second spring attached to the first named lever and arranged to effect the opening of the regulating device; substantially as described.

9. In an incandescent lamp, a gas control valve, an air regulating device, a lever connected to the air regulating device, a lever connected to the valve stem, a pull device connected to the last named lever, a spring connecting the pull device with the first named lever and a second and weaker spring attached to the first named lever and arranged to effect the opening of the regulating device; substantially as described.

10. In a gas lamp, an air regulating device, a lever connected thereto, two springs connected to said lever to act thereon in opposite directions, a gas control valve, and a

pulling chain connected to said valve and also to one of said springs; substantially as described.

11. A gas lamp having a gas inlet, an air inlet, a separate valve for controlling each of said inlets, a separate lever for each valve, and a single actuating device connected to both levers and arranged to shift the lever connected to the air control valve the full distance to shift said valve to close the air inlet and then operate the lever connected to the gas control valve to open the gas inlet, substantially as described.

12. A gas lamp having a gas inlet, an air inlet, a separate valve for controlling each of said inlets, a single actuating member operatively connected to both valves, the connection with the gas valve having a lost motion element therein whereby upon the operation of said actuating member the air valve will be shifted the full distance to close the valve and then shift the gas inlet valve to admit gas, substantially as described.

13. In a gas lamp, a mixing tube having an air inlet, an air-regulating device arranged to control said inlet and normally leaving the inlet open, a gas supply connection, a control valve for said connection, an

actuating connection for said valve, said actuating connection having means for first actuating the said regulating device to close the air inlet, and for subsequently opening the gas control valve, substantially as described.

14. In a gas lamp, a mixing tube having an air inlet and gas inlet, a separate valve for each of said inlets, and a single operating device connected to both valves and having means to retain the air valve in a closed position while the gas valve is being opened to a substantial degree; substantially as described.

15. In a gas lamp, a mixing tube having an air inlet and a gas inlet, a separate valve for each of said inlets, a single operating device connected to both valves and having means to retain the air valve in a closed position during the opening movement of the gas valve, and means to open the air valve when the operating device is released; substantially as described.

In testimony whereof, I have hereunto set my hand.

THOMAS JAMES LITTLE, JR.

Witnesses.

JOSEPH H. JOHNSON,
R. B. WASHINGTON.