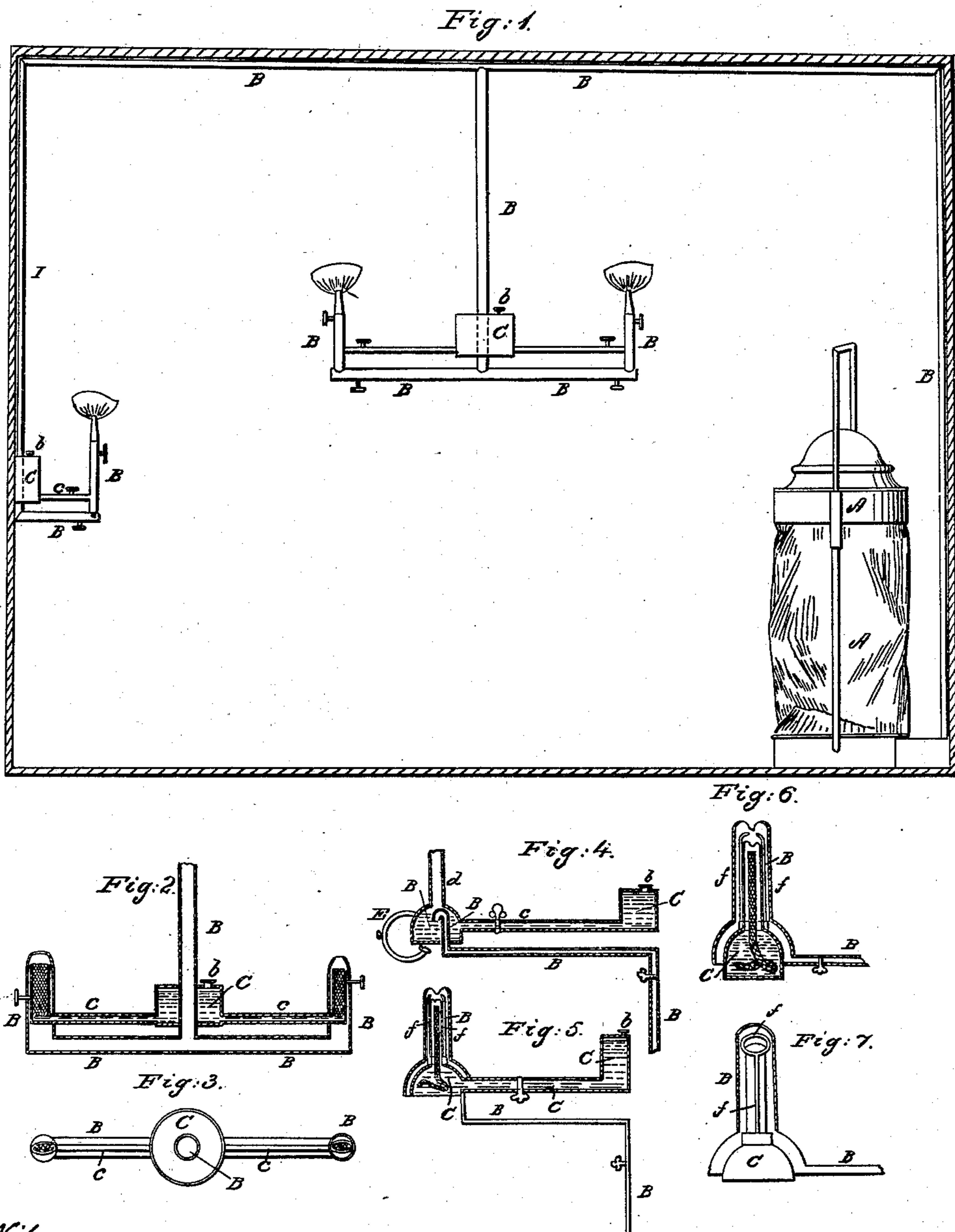


J. H. IRWIN,
Illuminating Apparatus.

No. 54,553.

Patented May 8, 1866.



Witnesses:
H. E. Mayo
L. L. Coturn

Inventor:
John H. Irwin.

UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF CHICAGO, ILLINOIS.

IMPROVED ILLUMINATING APPARATUS.

Specification forming part of Letters Patent No. 54,553, dated May 8, 1866.

To all whom it may concern:

Be it known that I, JOHN H. IRWIN, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Illuminating Apparatus; and I do hereby declare and make known that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

My invention relates to an improvement in fixed or stationary lights, as for pendent chandeliers or side lights and other similar purposes where hydrocarbon or other oils are used as a burning material; and it consists in supplying to the burners or point of combustion a constant and uniform current of fresh atmospheric air through suitable pipes properly arranged through the house for that purpose, thus producing a perfect and smokeless combustion without the use of draft-chimneys, while at the same time the pressure of the air expands the flame and gives it the appearance and almost or quite the brilliancy and illuminating power of a gas-flame.

To enable those skilled in the art to understand how to construct, apply, and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the said drawings, in which—

Figure 1 represents a side view of my invention; Fig. 2, an enlarged sectional view of the chandelier and its attachments; Fig. 3, a top or plan view of the same; Fig. 4, a modified form of applying my said improvement; Fig. 5, another form, and Figs. 6 and 7 represent sectional and side views of still another form of my invention.

Similar letters of reference in the different figures denote corresponding parts of my said improvement.

In Fig. 1 is represented a section of a room or house in which my improvement is applied, A representing a blower or apparatus for producing a current of air through the pipes B, which are arranged in substantially the same manner as ordinary gas-pipes, but may be made of much cheaper material, serving, as they do, only to conduct the atmospheric air to the point desired.

It is obvious that the pipes may be arranged

throughout a house, a branch leading to and discharging at every point where a light is required, as is the case with gas-pipes. For central chandeliers as many horizontal arms or branches may be employed as may be desired.

Around the drop or vertical portion of the pipe B, and just above the said horizontal arms thereof, there is arranged a reservoir, C, which contains the oil, which is introduced therein through any suitable filling device, as shown at *b*. From the bottom of said reservoir C there extend the horizontal tubes *c*, to each branch of the air-pipes, as shown, said tubes *c* entering the air-tubes and turning up therein, and being provided with a flat wick-tube rising to about the level of the oil in the reservoir. Thus the wicks contained in such wick-tubes are constantly saturated with the oil from the reservoir, ready to be ignited. The ends of the air-tubes terminate in a cone, which should be removable, provided with an appropriate slot to allow the flame to rise through.

When the burners are lighted and the blowing apparatus set in operation, the current of air is forced steadily to each burner, thus supplying an excess of oxygen and producing a perfect and smokeless combustion, while the flame is forced up through the slot aforesaid and expanded therein, so as to resemble in appearance and brilliancy the flame produced at an ordinary gas-burner.

The wick-tubes aforesaid should be made removable and be provided with suitable wick-regulators. The oil-tubes *c*, and also the air-pipes, are provided with suitable stop-cocks conveniently arranged for shutting off both the oil from the reservoir and the air from the burners.

In Fig. 4 is shown a mode of applying my improvement without using a wick or wick-tube, the tube *c*, in this case, terminating in a retort, (marked R,) from which rises an ordinary gas-burner, (marked *d*.) The oil is admitted into this chamber R in small quantities, the flow being regulated by a stop-cock in the pipe or tube *c*. The air-pipe B opens into said chamber R, the end being turned down, as shown, or otherwise. To light up this burner heat is applied to the retort to convert the small portion of oil contained therein into gas, while the air from the pipe B becomes carburated and is forced by the pressure out at the

burner *d*, where, being ignited, it burns as an ordinary gas-flame. The requisite heat may be kept up by means of the auxiliary tube *e*, provided with a burner beneath the retort, as shown.

Fig. 5 represents the wick arranged in a small oil-chamber and extending only part way up the wick-tube. The oil in the chamber beneath the wick-tube is heated so as to generate a gas, which, being ignited, heats the metallic heaters *f f*, which extend down to said chamber and keep it heated to the proper temperature, the air passing up around the wick-tube to the point of combustion, and expanding the flame in the slot above, as shown.

Figs. 6 and 7 represent arrangements simi-

lar to that last described, the oil-reservoir being arranged beneath the burner, as shown.

The current of air through the pipes may be produced by any suitable device for that purpose, or by the employment of heated air.

Having described the nature and operation of my invention, I will now specify what I claim and desire to secure by Letters Patent:

The combination of the air-pipes B, the oil-reservoir C, and an apparatus for forcing air through said pipes, when constructed and arranged substantially as and for the purpose specified.

Witnesses:

JOHN H. IRWIN.

W. E. MARRS,

L. L. COBURN.