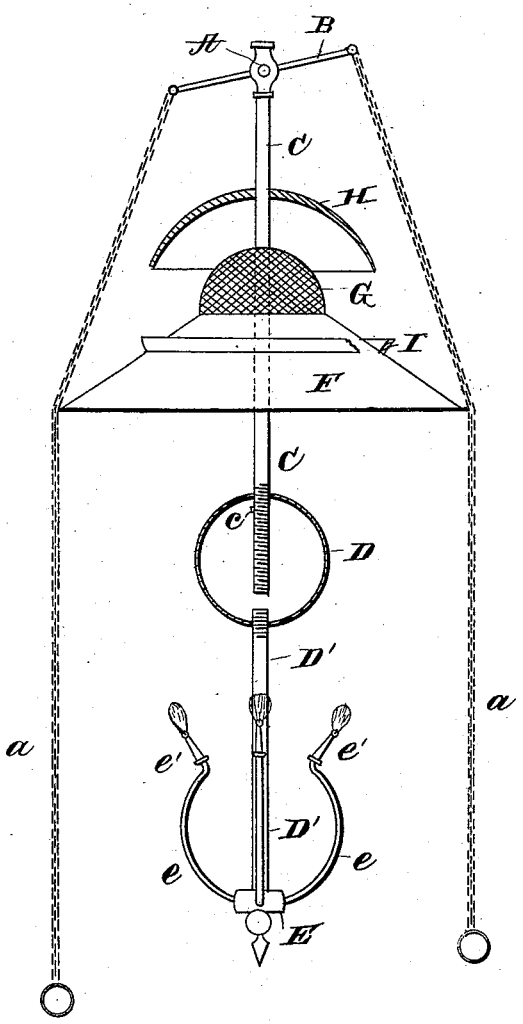
(No Model.)

E. C. HATHAWAY.

REGENERATIVE LAMP.

No. 420,538. Patented Feb. 4, 1890.



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UNITED STATES PATENT OFFICE.

EDWIN C. HATHAWAY, OF WASHINGTON, DISTRICT OF COLUMBIA.

REGENERATIVE LAMP.

SPECIFICATION forming part of Letters Patent No. 420,538, dated February 4, 1890.

Application filed March 12, 1889. Serial No. 302,966. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. HATHAWAY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Regenerative Lamps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to chandeliers or gas-pendants, and the object is to provide a gas-burner of this class which will heat the gas before it arrives at the point of combustion, whereby the gas and the particles of carbon held in suspension will be almost entirely consumed, thus producing a superior light and a saving of gas.

My invention further consists in means for arresting the heavier particles of carbon, so as to prevent their passage to the burner, whereby the burner might become partially or wholly stopped up and the flame caused to flicker or burn unevenly.

My invention also consists in providing said pendant with an improved form of hood or shade, whereby any unconsumed particles of carbon that may be carried upward by the current of heated air from said burners will be arrested and prevented from reaching and soiling the ceiling, and whereby the heated current itself may be deflected and dissipated or so intermixed with the surrounding cooler air as to be prevented from reaching the ceiling at all, as will be hereinafter more fully described, and particularly pointed out in the claims. These objects I attain by the construction shown in the accompanying drawing, which is a vertical elevation, partly in section, of my improved gas-lamp.

A is an ordinary "one-way" plug-cock provided with a lever B, each arm of which has a chain *a*, by means of which the cock A may be operated to turn the gas off and on.

Attached to the cock A is a depending pipe C, which extends through and to within a couple of inches of the bottom of the metal globe D. This pipe C is provided with an orifice *c* at a point just inside the top of the globe, and this orifice is of a size, say, about one-third or one-half the internal area in cross-section of the pipe itself. The bottom of the globe is provided with a pipe D′, which begins at a point about an inch from the inside of the bottom of said globe and terminates in a hollow spider E, from which radiate upwardly the tubes *e*, provided with burner-tips *e′*.

The operation is as follows: The gas, being turned on through the cock A, flows downwardly and fills the globe D, and thence to the burners *e′*, where it is consumed. As the globe becomes heated from the flames of the burners it tends to expand or rarefy the gas in the globe, which then becomes unable to support the heavier carbon particles held in suspension, and they fall by gravity into the bottom of the globe, from whence they may be removed from time to time by unscrewing the pipe D. As the gas in the globe becomes heated it naturally rises to the top, and a portion of this heated gas is forced by the expansion out through the orifice *c*, where it mixes with the downward current of cooler gas and is carried with it downward into the globe and thence to the burners to be consumed. Of course it will thus be seen that the amount of rarefied gas mixed with the downward current of cooler gas depends on the amount of heat received from the burners, and consequently the globe acts as a governor and regenerator, operating automatically by the height of the flame from the burners. The higher the flame the more the gas will regenerate.

Suitably secured to the pipe C above the globe and burners is an inverted-cone-shaped reflector F, having a central wire-gauze hood G, and above this is a shade H.

I is an annular flange on the top of the reflector F.

Ordinarily the heated current of air ascends vertically to the ceiling with sufficient force to carry with it particles of dust and dirt floating in the air with sufficient force to cause them to adhere or stick to the ceiling by impact and thus disfigure it, which is a very serious annoyance, especially in the case of plain white or finely-decorated ceilings.

The shade H, above described, may be of any opaque material; but if occasion require

it may be made of glass or any suitable material where a light above the burners is required.

By the construction shown in my invention the heated air passes through the wire-gauze, where a portion of its heat is dissipated, owing to the air being finely separated, and it is thence deflected by the shade H and escapes radially outward, where it comes in contact with a large volume of cooler air and its upward tendency very materially checked, so there will not be sufficient force of current to cause the dirt and dust to adhere to the ceiling. The heavier particles of dirt and dust set in motion by the current of heated air will strike against the shade H and fall upon the top of the reflector F, where it is held by the flange I.

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

1. The combination, in a gas-burner, of the globe D and pipe C, extending into said globe and provided with orifice *c*, and the pipe D′, having spider E, tubes *e*, and burners *e*′, as set forth.

2. The combination, with a gas-burner, substantially as described, of the reflector F, provided with gauze hood G and annular flange I, with the shade H, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN C. HATHAWAY.

Witnesses:
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