

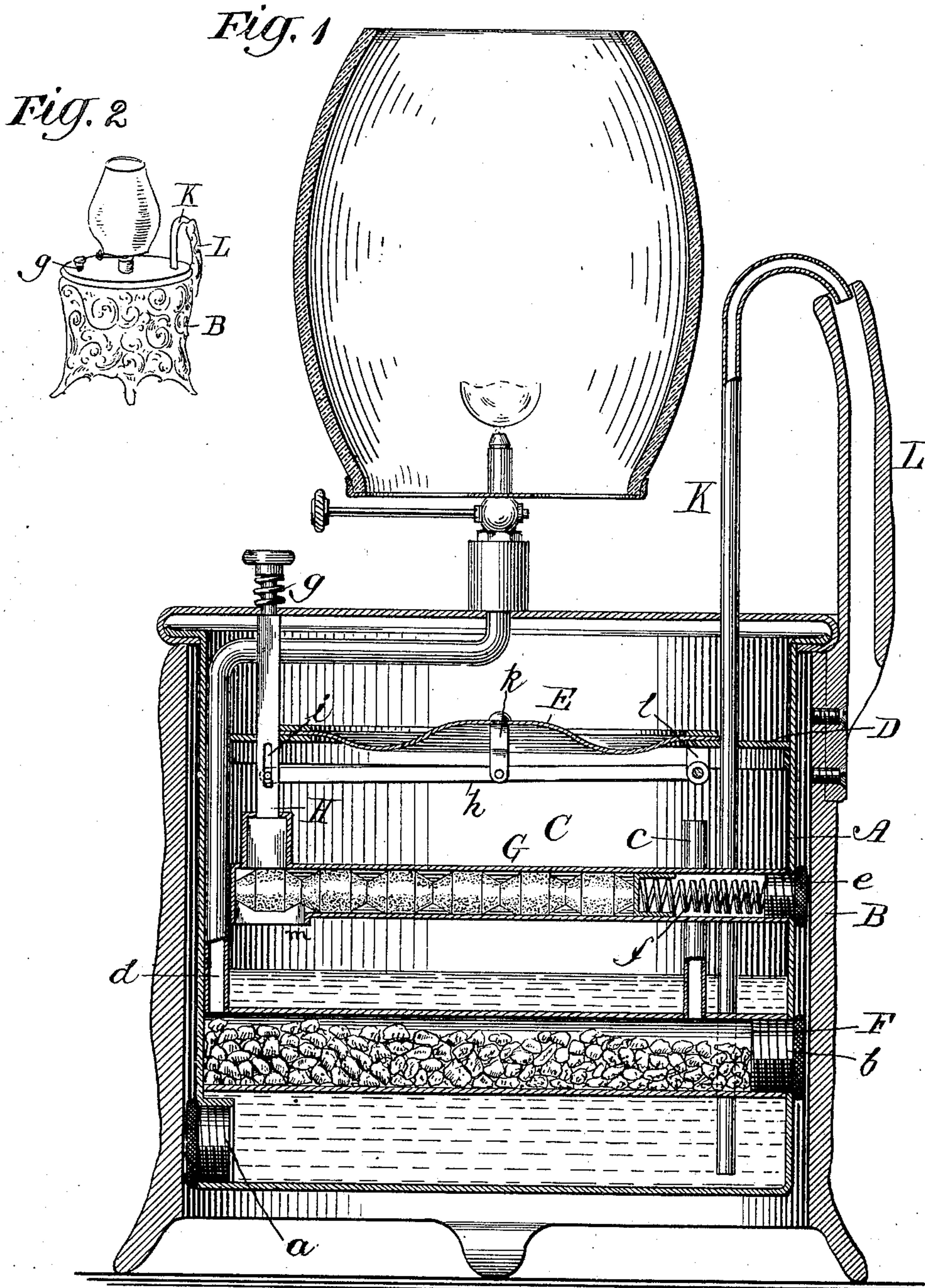
No. 669,113.

Patented Mar. 5, 1901.

E. N. DICKERSON.
ACETYLENE GAS LAMP.

(Application filed May 29, 1900.)

(No Model.)



WITNESSES:

R. H. Hayworth
H. J. Kinsman

INVENTOR

Edward N. Dickerson

BY

Clarkson A. Collins

ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD N. DICKERSON, OF STOVALL, NORTH CAROLINA.

ACETYLENE-GAS LAMP.

SPECIFICATION forming part of Letters Patent No. 669,113, dated March 5, 1901.

Application filed May 29, 1900. Serial No. 18,354. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. DICKERSON, a citizen of the United States, residing at Stovall, in the State of North Carolina, have

invented certain new and useful Improvements in Acetylene-Gas Lamps, of which the following is a specification.

My invention relates to that class of lamps in which the fuel employed is acetylene gas; and the object of my improvements is to provide a portable lamp of this class which shall automatically supply gas as required and be simple in construction and safe and efficient in operation.

A lamp embodying my improvements is illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical section, and Fig. 2 an elevation, thereof.

A indicates the body or shell of the lamp, within which the gas-generating apparatus is contained and which is adapted to be set in an outer case or vessel B. The lower part of the lamp A is formed into a closed gas-tight chamber C by a partition D, extending transversely across the lamp-body, part of which partition is formed of an expansible diaphragm E, of metal or other suitable material, and so arranged that when the gas-pressure below it is reduced it will descend with a positive motion. In the lower part of the chamber C is an opening closed by a plug *a* for the admission of water and the removal of the spent carbid.

Through the lower part of the chamber C extends a compartment F, having a feed-opening closed with a plug *b*. A pipe *c*, having its upper end in the upper part of the chamber C, extends downward into the compartment F for the passage of gas therein, and from the compartment F another pipe *d* extends up through the partition D and the top of the lamp to the gas-burner, which may be of any usual or suitable construction.

Across the chamber C, at a point above the line of the water to be contained therein, extends a carbid-compartment G, having a feed-opening closed by a plug *e*. Within the compartment G is a spiral feed-spring *f*, abutting against the plug *e*, and at the end of the compartment opposite the feed-opening is an opening extending vertically therethrough, into

which sets the lower end of a plunger H. An arm *h*, pivoted at one end at *t*, is secured to the diaphragm E and at its free end carries a pin which rides in a slot *i* in the plunger H, so that when the diaphragm descends the piston will be struck down and will be lifted again by the spring *g* when the diaphragm is forced upward by the gas-pressure.

In using the lamp the lower part of the chamber C is filled with water, the compartment F is charged with a suitable hygroscopic substance, such as carbid of calcium, and a charge of carbid is inserted in the compartment G. This charge is in the shape of a series of small separate charges of compressed carbid or a rod of carbid so formed that it may be broken off in small charges. On forcing down the plunger H a charge of carbid is pushed or broken off and falls into the water in the lower part of the chamber C. Gas is generated and passes through the pipe *c* into the chamber F, where it is dried by the absorption of its moisture, and thence by the pipe *d* to the lamp-burner. As the plunger H rises with the expansion of the diaphragm E by the gas-pressure the charge of carbid is quickly pushed across the opening *m* by the spring *f* and is held in place by the spring until the diaphragm descends with the exhaustion of the gas, and the plunger H is again forced down, driving another charge of carbid into the water. This operation is automatically repeated until the carbid in the compartment G is exhausted. An excess of gas-pressure in the lamp is relieved by the forcing of the water in the chamber C up through the escape-pipe K, the upper end of which terminates in a hollow upward extension L of the vessel B, which serves as a handle for the lamp.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an acetylene-gas lamp, the combination of a gas-generating chamber, a carbid-chamber having an opening therefrom into the gas-generating chamber, means for feeding forward the charge of carbid across such opening, an expansible diaphragm adapted to be forced up by gas-pressure in said generating-chamber and to have a positive downward motion when such pressure falls below a given point, a plunger operating to force car-

bid from the carbid-chamber into the generating-chamber, means operated by the downward motion of said diaphragm for forcing down said plunger and means for retreating the plunger, substantially as described.

2. In an acetylene-gas lamp, the combination of a gas-generating chamber, a carbid-chamber having an opening therefrom into said generating-chamber, means for feeding the carbid forward across said opening, a plunger operating in its downward motion to force carbid from said carbid-chamber into said generating-chamber and means operating upon the reduction of pressure in said generating-chamber for forcing said plunger downward, substantially as described.

3. In an acetylene-gas lamp, the combination of a gas-generating chamber, a carbid-chamber having an opening therefrom into said generating-chamber, a charge of carbid adapted to be fed across and to retain its position above said opening, means for feeding forward the carbid, and means for forcing

limited portions of the aggregate charge of carbid downward into the generating-chamber, substantially as described.

4. In an acetylene-gas lamp, the combination of a gas-generating chamber, a carbid-chamber having an opening therefrom into said generating-chamber, a charge of carbid adapted to be fed across and to retain its position above said opening and means for feeding forward the carbid, substantially as described.

5. The combination with an acetylene-gas lamp of a containing vessel having a hollow upward extension and a safety-vent from the lamp arranged to discharge thereinto, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

E. N. DICKERSON.

Witnesses:

H. COUTANT,

CLARKSON A. COLLINS.