

No. 620,148.

Patented Feb. 28, 1899.

J. G. A. KITCHEN.
ACETYLENE GENERATOR.

(Application filed Dec. 22, 1897.)

(No Model.)

Fig 1

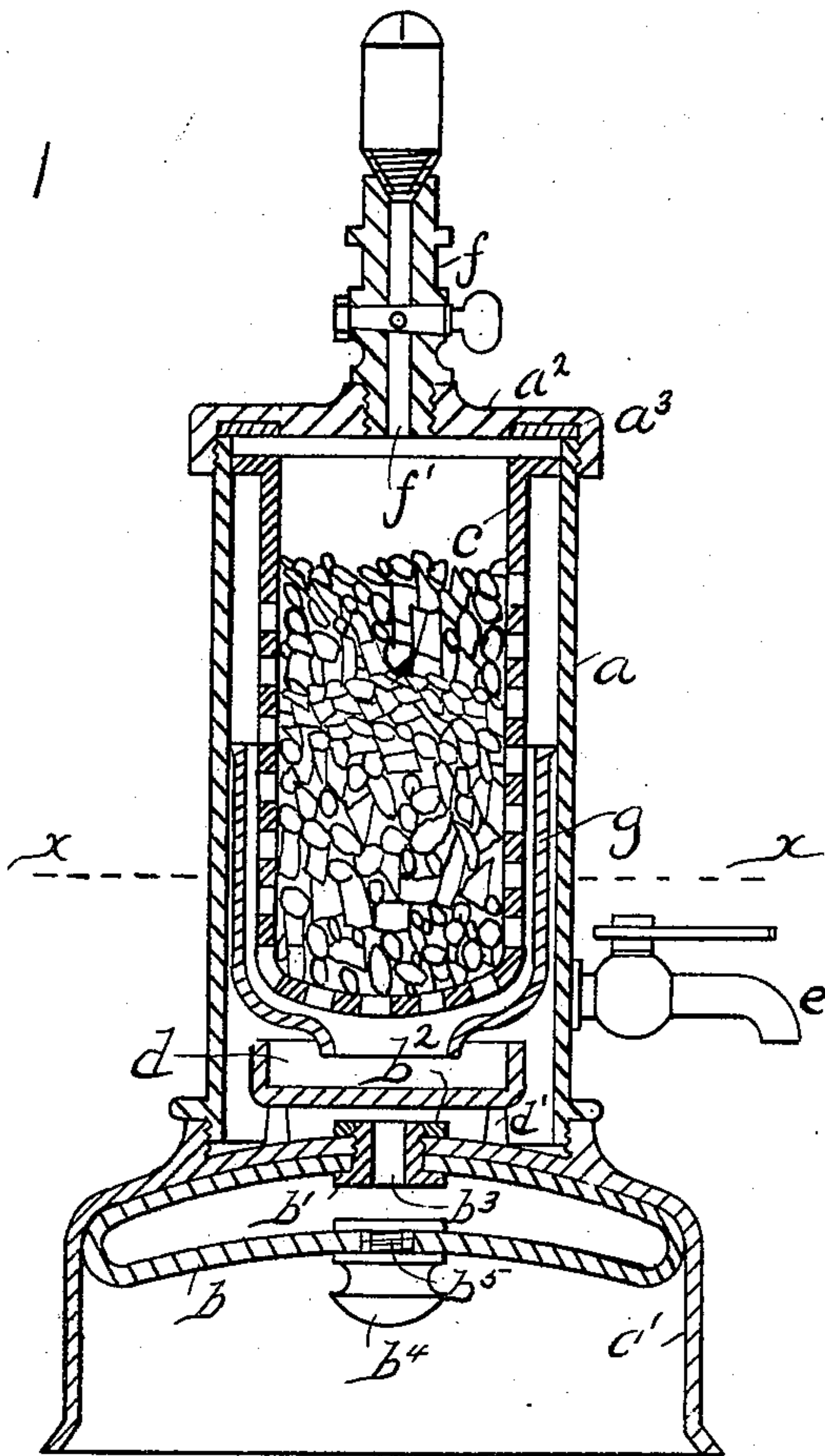
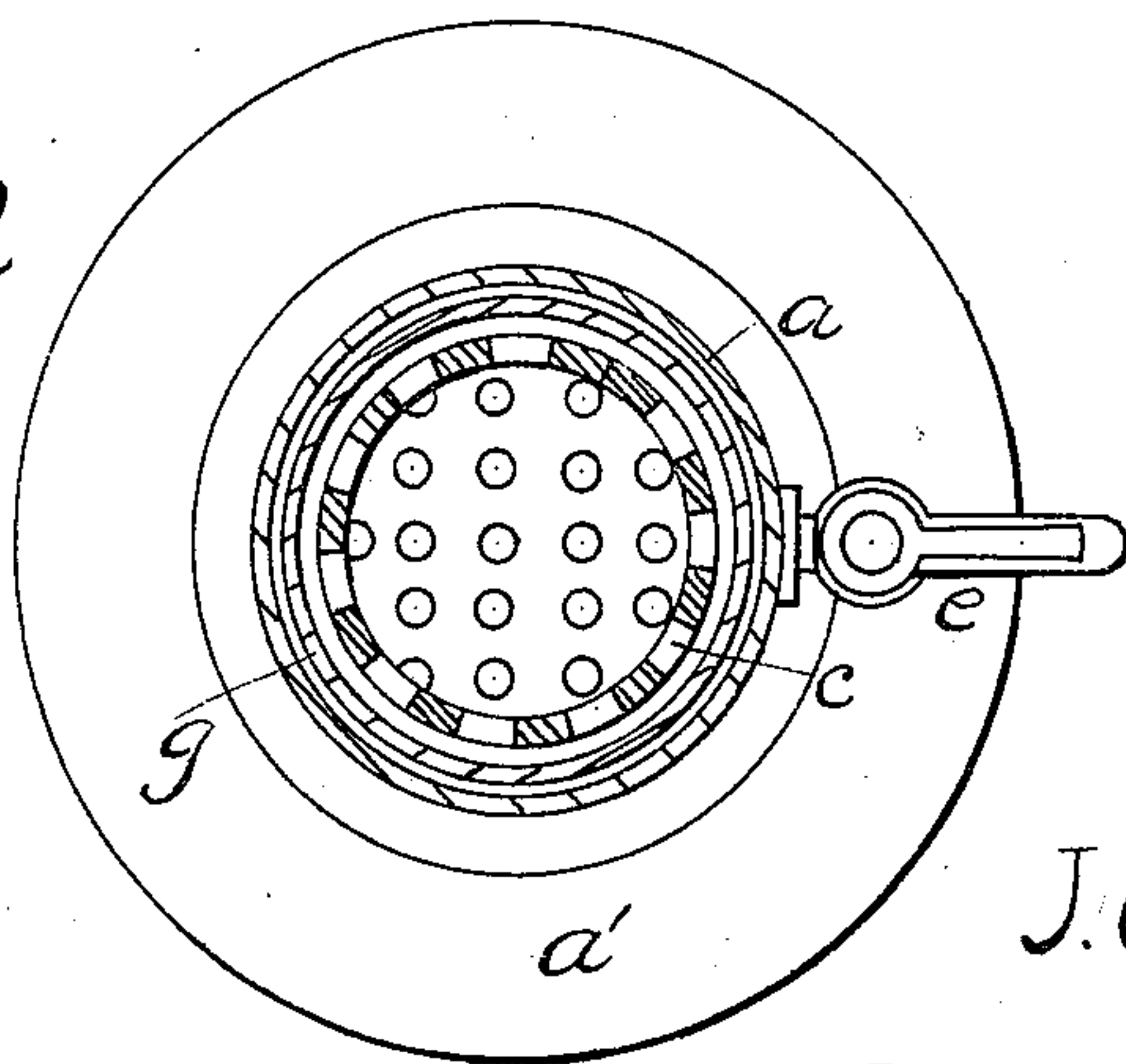


Fig 2



WITNESSES:

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JOHN GEORGE AULSEBROOK KITCHEN, OF MANCHESTER, ENGLAND,
ASSIGNOR TO THE MANCHESTER CYCLE COMPONENTS COMPANY,
LIMITED, OF SAME PLACE.

ACETYLENE-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 620,148, dated February 28, 1899.

Application filed December 22, 1897. Serial No. 662,990. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEORGE AULSEBROOK KITCHEN, a subject of the Queen of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Acetylene-Generators, of which the following is a specification.

This invention relates more particularly to portable generators for use in connection with table, vehicle, and hand lamps and with small power internal-combustion motors, such as are used for propelling wheeled vehicles and boats; and it consists in improvements in and connected with the construction of such generators with the object of producing an inexpensive and simple apparatus which will not be affected by vibration.

In a generator constructed in accordance with my invention there is a closed chamber, of metal or of other suitable material, which has a removable door or cover, and inside this chamber is disposed a perforated receptacle or basket to receive the calcium carbide and which is made readily removable. There is an orifice formed in the lower part or in the bottom of the chamber, and there is connected to this orifice a collapsed chamber, preferably principally formed of india-rubber or other suitable flexible material, so as to be capable of considerable expansion. The outlet-pipe for the gas is led from the upper part of the generator. There is a tap or other indicator for the reactionary liquid below the carbide-receptacle.

The sheet of drawings attached hereunto illustrates a generator constructed in accordance with my invention.

In the said drawings, Figure 1 represents a sectional elevation of the generator, and Fig. 2 a plan on the line $x x$.

The generator consists, first, of a chamber or vessel a , having a gas-tight lid a^2 at the top, shown as screwed upon the casing a , and having a flexible washer a^3 in order to obtain a tight joint. The lower part of the casing a is fixed to a box-stand a' , which forms a bottom for the vessel a . A collapsed india-rubber chamber b is fixed in the box-stand

a' by means of a screw b' passing through the bottom of the vessel a , fitted with a nut b^2 , and having a hole b^3 passing through, by which screw and nut the india-rubber chamber is clamped to the vessel a . A knob b^4 , tapped and provided with a screw b^5 , is screwed by clamping to the outer wall of the flexible india-rubber chamber b . A receptacle or basket c , perforated preferably all over, is formed to fit loosely in the vessel a , leaving some space between it and the bottom of the vessel, as illustrated. Preferably a loose tray d is placed under the receptacle c and rests upon projections d' upon the bottom of the vessel a . There is a water-level indicator, preferably in the form of the tap e . This is left open while the chamber b is filled or partly filled with water, so that the level remains below the bottom of the vessel c . A tap f is fixed to the lid a^2 for taking off the gas through the orifice f' . In order to prevent the liquid from flowing into contact with the carbide in the vessel c in the event of the apparatus becoming upset, a shield g is fixed to the inside of the casing a in the manner shown in the drawings, and thereby a chamber is formed in which the liquid will be trapped.

The water will, when the lamp lies on its side, surround the outside of the shield g , but will not go past its end, which is water-tight, within the casing a . In practice the space between the said shield and the casing a should be large enough to hold all the water that might otherwise enter the lower opening of the shield and then attack the carbide.

Water is introduced into the vessel d after the lid a^2 and the vessel c have been removed. The water is allowed to partly fill the chamber b by expanding the latter by means of the knob b^4 . When the level coincides with the tap e , the vessel c , charged with granulated carbide, is introduced and the lid or cover a^2 fastened down. By releasing the knob and allowing the chamber b slightly to contract water is forced into contact with the carbide in the bottom of the receptacle c and gas is immediately produced, which if not taken off as generated will act upon the sur-

face of the water and force it back into the chamber *b*. As the pressure of the gas produced falls, due to being consumed or drawn away from the generator, water is forced out of the chamber *b*, as the latter tends to assume its normal form, and again comes in contact with the carbid in the receptacle *c*, gas being again produced, the pressure of which again forces back the water into the chamber *b*. This operation is repeated until all the carbid or all the water is decomposed. The tray *d* serves to receive the residue of the decomposed carbid, which passes through the perforations in the bottom of the receptacle *c*.

The generator shown may be used as a vehicle-lamp by fixing thereto a carrier of the usual well-known form and placing a glazed hood over the burner, which may be arranged in front of the casing *a* by carrying a pipe from the outlet-orifice thereto.

I do not confine myself to the particular form of the apparatus illustrated or to the relative position of the chamber *b*, which may equally well be applied at the side of the chamber or vessel *a*, as long as the parts are arranged to fulfil the functions required of them, as hereinbefore set forth.

I claim as my invention—

1. A generator for producing acetylene from calcic carbid and water consisting of a gas-tight vessel to contain water having a hollow base, a flexible collapsed chamber in the base communicating with the said vessel, a perforated carbid-receptacle loosely fitted into the said vessel, a shield for preventing the water from coming into contact with the carbid in the carbid-receptacle in the event of the apparatus becoming upset and an out-

let-orifice closed by a tap said shield surrounding the lower part of the carbid-receptacle.

2. A lamp consisting of the combination of an expansible and contractible receptacle of india-rubber for containing a liquid, a vessel for holding the product to be acted upon by the liquid, an air-tight chamber for confining the gas liberated by the liquid from said product, means for permanently permitting the passage of the liquid to and from the expansive receptacle, to and from said vessel by the action of the pressure of the gas produced and a tap for the exit of the gas, and a tap *e* arranged in the side of the chamber for gaging and fixing the depth of the liquid.

3. A lamp consisting of the combination of an expansible receptacle for containing a liquid a vessel for holding the product to be acted upon by the liquid, an air-tight chamber for confining the gas liberated by the liquid from said product, means for permanently permitting the passage of the liquid to and from the expansive receptacle to and from said vessel by the action of the pressure of the gas produced and a tap for the exit of the gas, and a tap *e* arranged in the side of chamber for gaging and fixing the depth of the liquid, a knob *b*⁴ being attached to the expansive receptacle for manually expanding the same.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

JOHN GEORGE AULSEBROOK KITCHEN.

Witnesses:

CARL BOLLÉ,

RIDLEY JAMES URQUHART.