

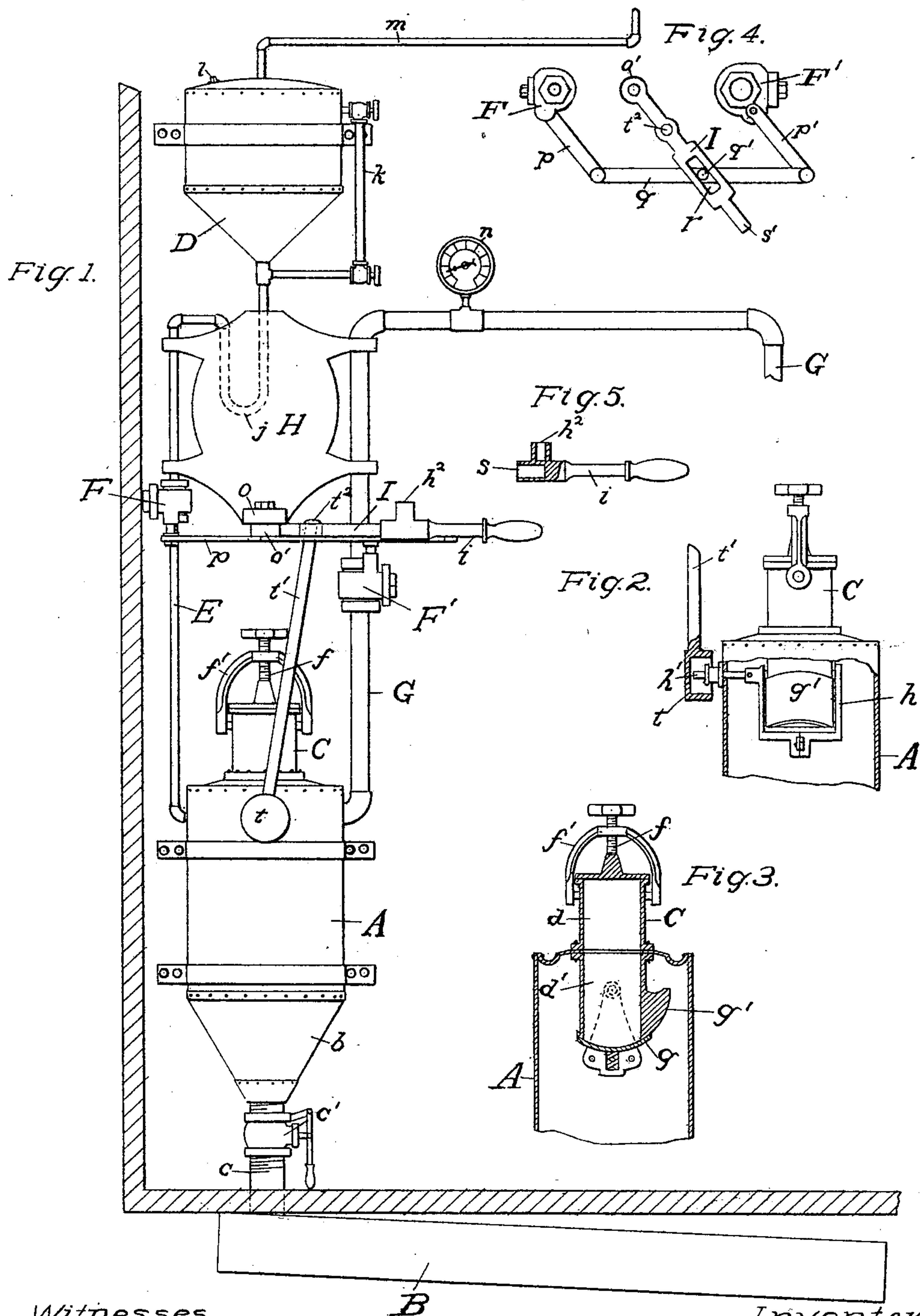
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Patented Oct. 24, 1899.

F. C. PEARRE.
ACETYLENE GAS GENERATOR.

(Application filed Feb. 23, 1899.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

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ELECTRIC GAS LIGHT COMPANY, OF SAME PLACE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 635,507, dated October 24, 1899.

Application filed February 23, 1899. Serial No. 706,511. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. PEARRE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Acetylene-Gas Apparatus, of which the following is a specification.

This invention relates to an apparatus for producing acetylene gas from carbide of calcium.

The object of the invention is to provide an apparatus adapted for use on cars, steamboats, and in any place where the apparatus might be subjected to jar or vibration.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the entire apparatus. Fig. 2 is an elevation, partly in section, of the gas-generating chamber and shows the crank end of the carbide-valve covered by the shield. Fig. 3 is a view of the gas-generating chamber, showing the parts on a section-line in a direction transverse with respect to the position seen in Fig. 2. Fig. 4 is a top plan view of the water and gas valves and the lever for operating them. Fig. 5 is a view of the lever-handle, partly in section, showing the sockets.

The gas-generating chamber A is cylindrical and stands upright and has a coneshaped bottom *b*, which connects with a pipe *c*, having a valve *c'* and communicating with an ash or water receiver B. At the upper part of this chamber is the carbide-charger C, made in two sections *d d'*, one above the other. The upper section *d* is on the exterior over the head *e*, and the lower section *d'* is inclosed in the chamber A, and the two sections are connected at the top head *e* of the chamber, so as to form one receptacle C. The upper section *d* is closed by a cap held in place by a screw *f*, mounted in a yoke *f'*. The bottom of the lower section *d'* is closed by a curved slide-valve *g*, carried by a swinging yoke *h*, pivoted to the sides of the lower section. The lower section has a curved bottom which at one side continues into a curved boss *g'*, onto which the curved valve *g* moves when it is in the open position. The curved slide-valve is opened and closed by a shaft or crank end *h'*, attached to the swinging yoke *h* on a line

with the pivots of said yoke and projecting through the wall of the chamber A to the outside thereof. A wrench or the lever-handle *i* may be attached to this projecting crank end *h'*, and thereby the valve *g* of the carbide-charger may be opened or closed.

A water-reservoir D has an elevated position and is entirely separate from the gas-generating chamber A. A pipe E leads from this water-reservoir and connects with the chamber A. This water-pipe has a U-shaped bend *j* to form a trap and a valve F, which cuts off the water-supply. A glass-tube water-gage *k* is attached to the exterior of the water-reservoir to denote the height of the water in the latter. The water-reservoir may be filled with water at an opening closed by a plug *l*, and a pipe *m*, leading from the top of the reservoir, affords an air-inlet to vent the reservoir when the valve F is open and allow the water to readily discharge from the reservoir. This pipe *m* will also afford an escape for gas to the outdoor atmosphere in case the water-valve F should leak or become deranged after the water in the reservoir D had been discharged into the chamber A and gas had begun to generate.

A pipe G leads from the gas-generating chamber A to a suitable gas-storage tank. (Not shown.) This pipe has a valve F' like the valve F in the water-pipe, only of larger size. A pressure-gage *n* is on the gas-pipe G at any desired point between the valve F' and the said gas-storage tank. This gage always denotes the gas-pressure in the storage-tank.

A plate H connects or binds the water-pipe and gas-pipe, also stays the water-pipe trap *j*, and affords a bearing *o* for the end *o'* of a lever I, which operates both the water and gas valves F F', respectively. This lever I moves in a horizontal plane, as do also the levers *p p'* of the said valves. The two valve-levers are connected by a bar *q*, which at the center has a stud or bolt *q'* passing up through a slot *r* in the operating-lever I. In the drawings the lever *p* of the water-valve projects from the lower side of the valve-case, and the lever *p'* of the gas-valve projects from the upper side of the valve-case. The arrangement is such that when the op-

erating-lever I is moved to one side the water-valve F will be opened and at the same instant the gas-valve F' will be closed, and when the said lever is moved to the opposite
 5 side the reverse operations take place—the water-valve will be closed and the gas-valve opened. This action is of importance in the operation of this apparatus, as will be explained hereinafter.

10 A removable lever-handle *i* has an end socket *s* to fit on the short square end *s'* of the operating-lever I and a side socket *h*² to fit on the crank end *h'*, that operates the swinging carbid-valve *g*. This one lever-
 15 handle therefore is to be employed for first one and then the other purpose.

It is desirable to so arrange the parts that it shall be impossible to open the carbid-valve *g* while the water-valve F is open or
 20 while the gas-valve F' is closed. To this end I combine with the operating-lever I, which controls both the water and gas valves, a shield *t* to cover the projecting crank end *h'* of the carbid-valve. This shield *t* is attached
 25 to the lower end of a rod *t'*, whose upper end is fixed at *t*² to the operating-lever I. It will now be understood from this explanation and Figs. 1 and 2 that access cannot be had to the crank end *h'* of the carbid-valve when
 30 the gas-valve is closed, because the operating-lever I will at the closed position of that valve hold the shield *t* over the said crank end; but when the lever I shall be moved to open the gas-valve F' and close the water-
 35 valve F then the shield *t* will be out of the way of the crank end, and the latter may be turned by applying the handle *i*.

The construction of apparatus here shown provides for keeping the water in a reservoir
 40 wholly separate and independent of the gas-generating chamber, and the carbid-charger is an air-tight receptacle which when closed is distinct and cut off from the gas-generator and is also wholly separate and independent
 45 of the water-reservoir. By this construction there is no possibility of the water and carbid commingling accidentally either by jar or vibration or by the upsetting of a car, as might be the case when a wreck occurs on a
 50 railroad. By so constructing the operating-lever I, the crank end *h'* of the carbid-valve, the shield *t*, and the removable lever-handle *i* that the latter device must be employed both for working the lever and subsequently
 55 for operating the carbid-valve an assurance of safety in the management of the apparatus is secured and there will be no liability of the charge of carbid contained in the receptacle C being dumped into the gas-generating chamber A when the gas-valve F' is
 60 closed.

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

65 1. In an acetylene-gas-generating apparatus the combination of a gas-generating chamber, A, having a top head, *e*; a carbid-charger,

C, made in two sections one above the other and the two forming one receptacle, the upper section being on the exterior of the said
 70 top head and the lower section inclosed within the gas-generating chamber below the said top head and having a valve; a water-reservoir, D, wholly separate and independent of the gas-generating chamber; a pipe from the
 75 water-reservoir to the gas-generating chamber and having a valve, F; a gas-pipe, G, leading from the gas-generating chamber to a suitable storage-tank and having a valve, F'; an operating-lever, I, connected with both the
 80 said water and gas valves whereby when one valve is in the open position the other valve will be in the closed position; and a shield, *t*, carried by the said operating-lever and which, when said lever is in the position to close the
 85 said gas-valve, will prevent access to the said valve of the carbid-charger, as set forth.

2. In an acetylene-gas-generating apparatus the combination of a gas-generating chamber, A; a carbid-charger to dump calcium carbid into said chamber; a water-reservoir, D,
 90 wholly separate and independent of the gas-generating chamber; a vertical pipe connecting from the water-reservoir to the gas-generating chamber and having a valve, F; another pipe, G, leading from the gas-generating chamber and having a valve, F'; a plate, H, connecting the said two pipes; and an operating-lever, I, pivoted on said plate and connected with the said two valves of both
 100 the water and gas pipes, as set forth.

3. In an acetylene-gas-generating apparatus the combination of a gas-generating chamber, A; a carbid-charger to dump calcium carbid into said chamber; and having a valve
 105 which controls said dumping, the valve provided with a projecting crank end, *h'*; a water-reservoir, D, wholly separate and independent of the gas-generating chamber; a pipe from the water-reservoir to the gas-generating chamber and having a valve, F; a gas-pipe, G, leading from the gas-generating chamber and having a valve, F'; a short operating-lever having a square end, *s'*, and connected with the said two valves of both
 115 the water and gas pipes; a shield carried by said operating-lever and which, in one position, will cover the projecting crank end of the carbid-valve; and a removable lever-handle, *i*, having a side socket, *h*², to fit on the
 120 said projecting crank end of the carbid-valve and also provided with an end socket, *s*, to fit on the square end, *s'*, of the said operating-lever, whereby the removable lever-handle must first be employed to open the gas-valve
 125 and close the water-valve and then removed and employed to open the carbid-valve, as set forth.

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

FRANK C. PEARRE.

Witnesses:

MAURICE LE MAT,
 CHARLES B. MANN, Jr.