(No Model.)

2 Sheets—Sheet 1.

J. H. COUPER.

ACETYLENE GAS GENERATOR.

No. 605,397. Patented June 7, 1898.

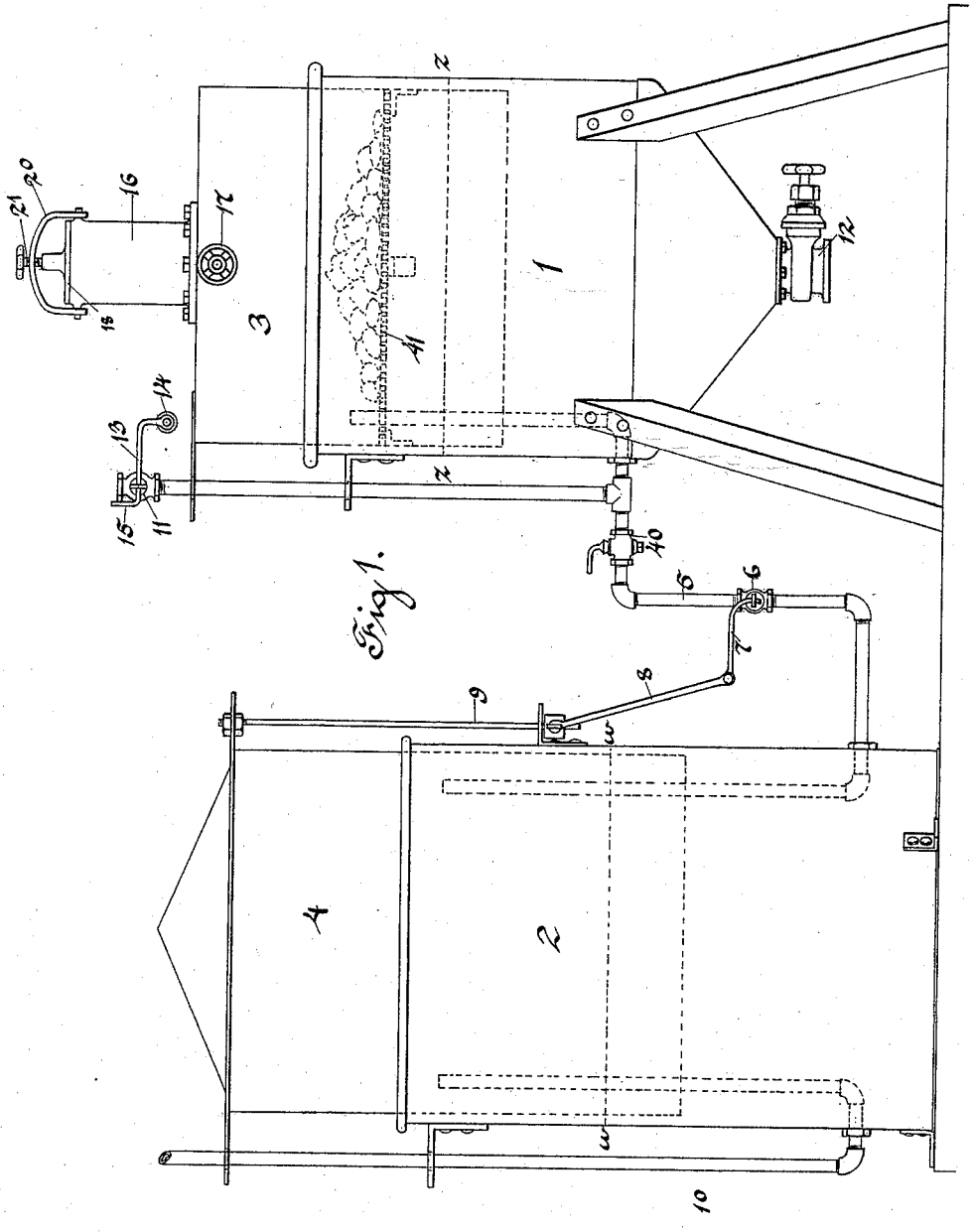


Fig. 1.

WITNESSES

Wm. W. Handy.

Geo. C. Morrison

INVENTOR.

James H. Couper

BY Stevens & Stevens

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

J. H. COUPER.

ACETYLENE GAS GENERATOR.

No. 605,397. Patented June 7, 1898.

Fig 8.

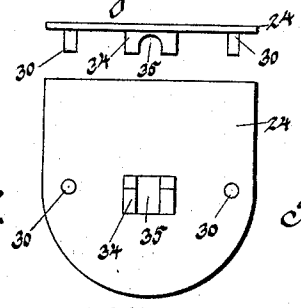


Fig 3.

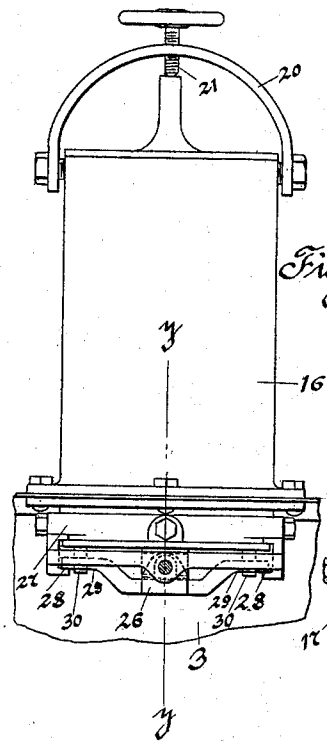


Fig 9.

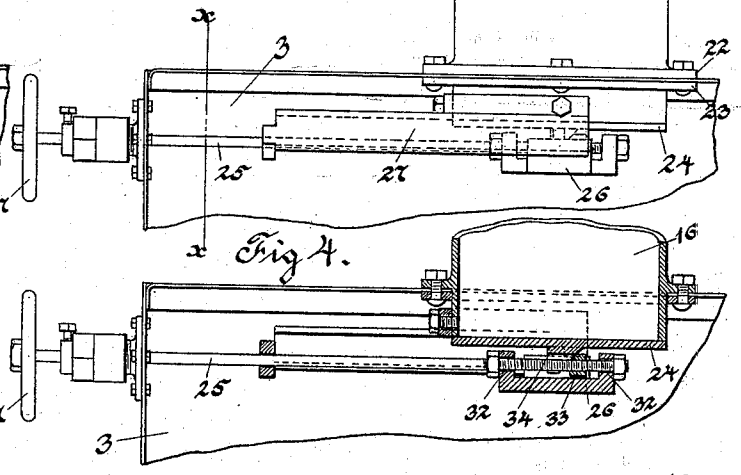


Fig 2.

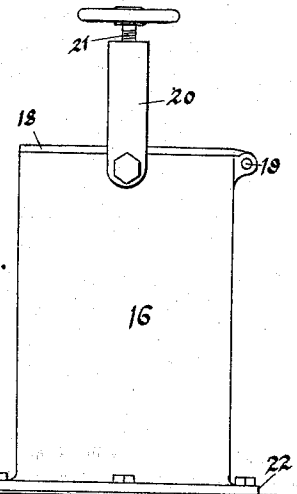
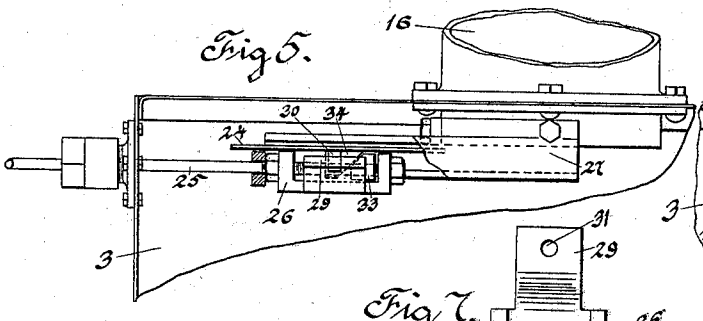


Fig 4.

Fig 5.



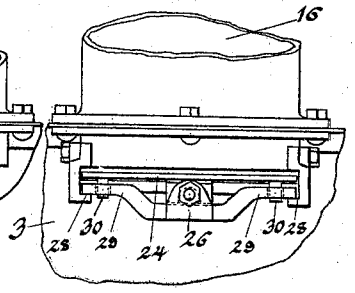


Fig 7.

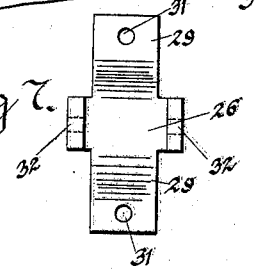


Fig 6.

WITNESSES

Wm. H. Handy.

Geo. P. Morrison

INVENTOR.

James H. Couper

BY

Stewart & Stewart

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES H. COUPER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE BRYAN MANUFACTURING COMPANY, OF SAME PLACE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 605,397, dated June 7, 1898.

Application filed July 20, 1897. Serial No. 645,293. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. COUPER, a citizen of the United States, and a resident of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

My invention relates particularly to that class of generators in which the gas is developed by the action of water on calcium carbid. In charging such generators it is important that no gas should escape while the carbid is being introduced and also that the generator may be charged while running without in any way interfering with its operation.

My invention consists in certain details of construction, which are fully explained in the following specification, reference being had to the accompanying drawings.

Figure 1 shows a generator with my improvements attached. Figs. 2, 3, 4, 5, 6, 7, 8, and 9 are detail views of a receptacle for calcium carbid or other material.

Referring to Fig. 1, 1 and 2 are gasometers. 3 and 4 are the movable parts of the same, which rise and fall with the supply of gas contained therein. 5 is a pipe connecting 1 and 2. 6 is a valve in pipe 5. 7, 8, and 9 are rods for opening and closing valve 6. 10 is the gas-delivery pipe. 11 is a safety-valve connected to the pipe 5 by means of a branch. 13 is an arm passing through the valve-stem, the lower end of the arm having a weighted roller 14 attached, the roller having sufficient weight to turn the valve and close it. When the valve is closed, the upper arm 15 comes in contact with the side of the valve-casing and the valve remains in a fixed position. 16 is a receptacle in which the calcium carbid is placed. 17 is a hand-wheel by means of which the bottom of the receptacle may be opened and the contents precipitated into the gasometer 1. Both the gasometers 1 and 2 contain water to the levels shown by the dotted lines *z z* and *w w*. 12 is a large gate-valve for cleaning out the gasometer 1. 41 is a perforated partition attached inside the movable part 3 of generator 1, as shown.

Referring to Figs. 2, 3, 4, 5, and 6, the receptacle 16 and the manner in which it is attached to the part 3 are shown. The top 18 is hinged at 19 and clamped by means of the piece 20 and screw 21. 22 and 23 are flanges by means of which the receptacle 16 is fastened to the part 3. The bottom 24 is clamped in position by means of the threaded rod 25, hand-wheel 17, and clamp 26, the operation of which will be explained later. 27 is a guide-piece which has two grooves 28 on its inner surface, through which the bottom 24 is moved back and forth. The clamp 26 (a plan view of which is shown in Fig. 7) has two arms 29 29, which extend into the grooves 28 28, as shown in Figs. 3 and 6. Extending downward from the under surface of the bottom 24 are two pins 30 30. (Shown in detail in Figs. 8 and 9.) These pins fit in the holes 31 31 of the clamp 26.

Referring to the sectional view, Fig. 4, 26 is the clamp, having holes 32 32, through which the rod 25 is slipped, said rod being loose in these holes. 33 is a nut which is moved back and forth as the rod 25 is turned. 34 is a downward-extending piece of the plate 24, which comes in contact with the nut 33. Now as the rod 25 is turned in one direction the nut is drawn from right to left, pressing against the lower surface of the piece 34, which is pushed up, and the bottom 24 clamped against the receptacle 16. The bottom is kept from sliding endwise by means of the pins 30, which extend into the holes 31 of the clamp 26. By turning the rod 25 in the opposite direction the nut 33 is moved from left to right away from the piece 34, and the bottom 24 falls until it rests on the clamp 26, as shown in Figs. 5 and 6. To empty the contents of the receptacle, the bottom 24 is then drawn back by means of the rod 25 and hand-wheel 17. In Fig. 5 the bottom 24 is shown drawn from under the receptacle 16, thus permitting the contents to be emptied.

The operation of the machine is as follows: In Fig. 1 the movable part 4 of the gasometer 2 is shown at its highest position, with the valve 6 closed and the part 3 of the gasometer 1 in a position midway between up and down. Suppose the gas is drawn from gasometer 2 by way of the delivery-pipe 10. The part 4 will fall to a certain point, where the combination of rods 7, 8, and 9 will start to open the valve 6, thereby admitting more gas

from gasometer 1 into gasometer 2. The part 4 will rise again, and when it has reached a certain height the valve 6 will again close. In this way the supply of gas in gasometer 2 is kept up. If it is desired to recharge the machine with calcium carbid, the bottom of the receptacle 16 is tightly closed by means of the hand-wheel 17, as has been explained, the top 18 removed, and a fresh supply of carbid placed in the receptacle. The top 18 is then securely fastened and the contents emptied into the gasometer by means of operating the hand-wheel 17, as has been explained. The carbid falls on the partition 41, coming in contact with the water if the part 3 is sufficiently down. Gas is now generated by the action of the water on the carbid and the part 3 will rise sufficiently to raise the carbid out of the water and stop the generation of gas. If the generation of gas is too rapid, the part 3 will rise and come in contact with the roller 14, which will be raised and the valve 11 opened by means of the lever 13. This, however, never occurs unless the partition should become broken and all the carbid precipitated directly into the water. Valve 11 allows the gas to escape and avoid any possibility of danger. To clean out gasometer 1 without interfering with the supply of gas from gasometer 2, the valve 40 is closed, thereby severing the connection between 1 and 2. Valve 12 may now be opened and the contents of gasometer 1 removed.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a generating and a receiving gasometer, a pipe connecting the gas-spaces of both, a valve in said pipe, operating mechanism for the valve controlled by the movable part of the receiving-gasometer, a receptacle mounted on the movable part of the generating-gasometer, the top of said receptacle opening outward and bottom inward, means for clamping the top in place, a hand-wheel and rod extending from the bottom to the exterior of the gasometer, a nut operated by the rod said nut engaging with a lug on the bottom of the receptacle in such a way that when the rod is turned in one direction the nut engages with the lug and clamps the bottom, and when turned in the opposite direction unclamps the bottom which may then be drawn from under the receptacle by means of the rod, a perforated partition carried by the movable part of the generating-gasometer to receive calcium carbid or other material from the receptacle, and a safety-valve connected to the gas-space of generating-gasometer and operated mechanically by the movable part thereof.

2. In a calcium-carbid receptacle having a removable bottom, the combination of a pair of parallel guides one on each side of the receptacle at its lower edge, a yoke the ends of which rest in and slide in said guides, said yoke being provided with perforated lugs, a threaded rod passing through said lugs, and secured therein so as to turn but not move laterally, a nut upon said rod adapted to move in a direction parallel to the rod and having its upper surface beveled, and the bottom resting upon and guided by the yoke, and provided with a beveled lug on its under side, which engages with the beveled surface of the nut; the whole yoke and bottom being moved back and forth by the rod in a direction parallel to it, and the bottom being clamped in position by the nut, substantially as described.

Signed at Baltimore city, in the State of Maryland, this 16th day of July, A. D. 1897.

JAS. H. COUPER.

Witnesses:
GEO. C. MORRISON,
WM. W. HANDY.