

No. 762,730.

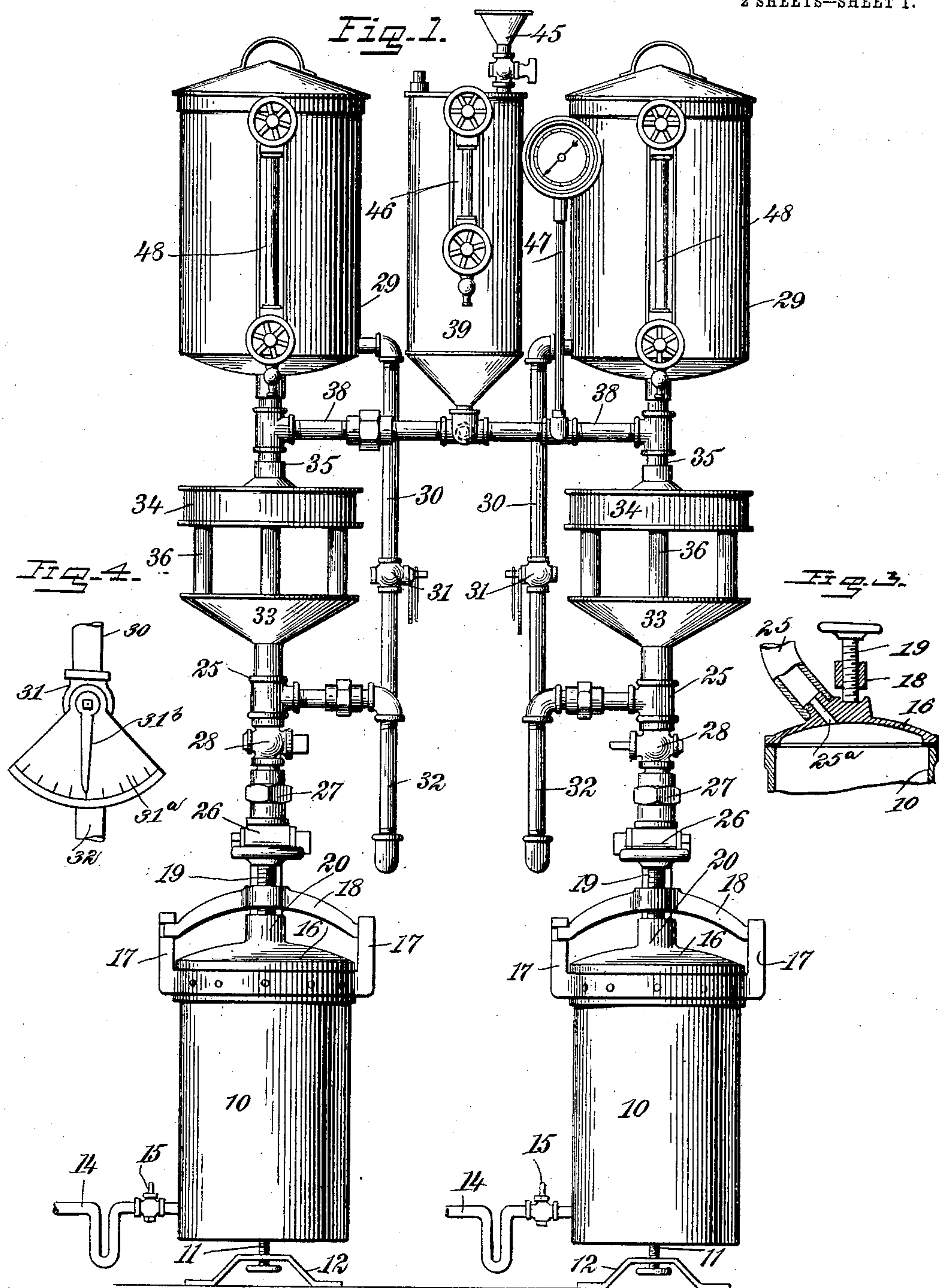
PATENTED JUNE 14, 1904.

N. LIKINS.
ACETYLENE GAS GENERATOR.

APPLICATION FILED OCT. 16, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

James F. Duhamel,
Isaac B. Owens.

INVENTOR

Nelson Likins

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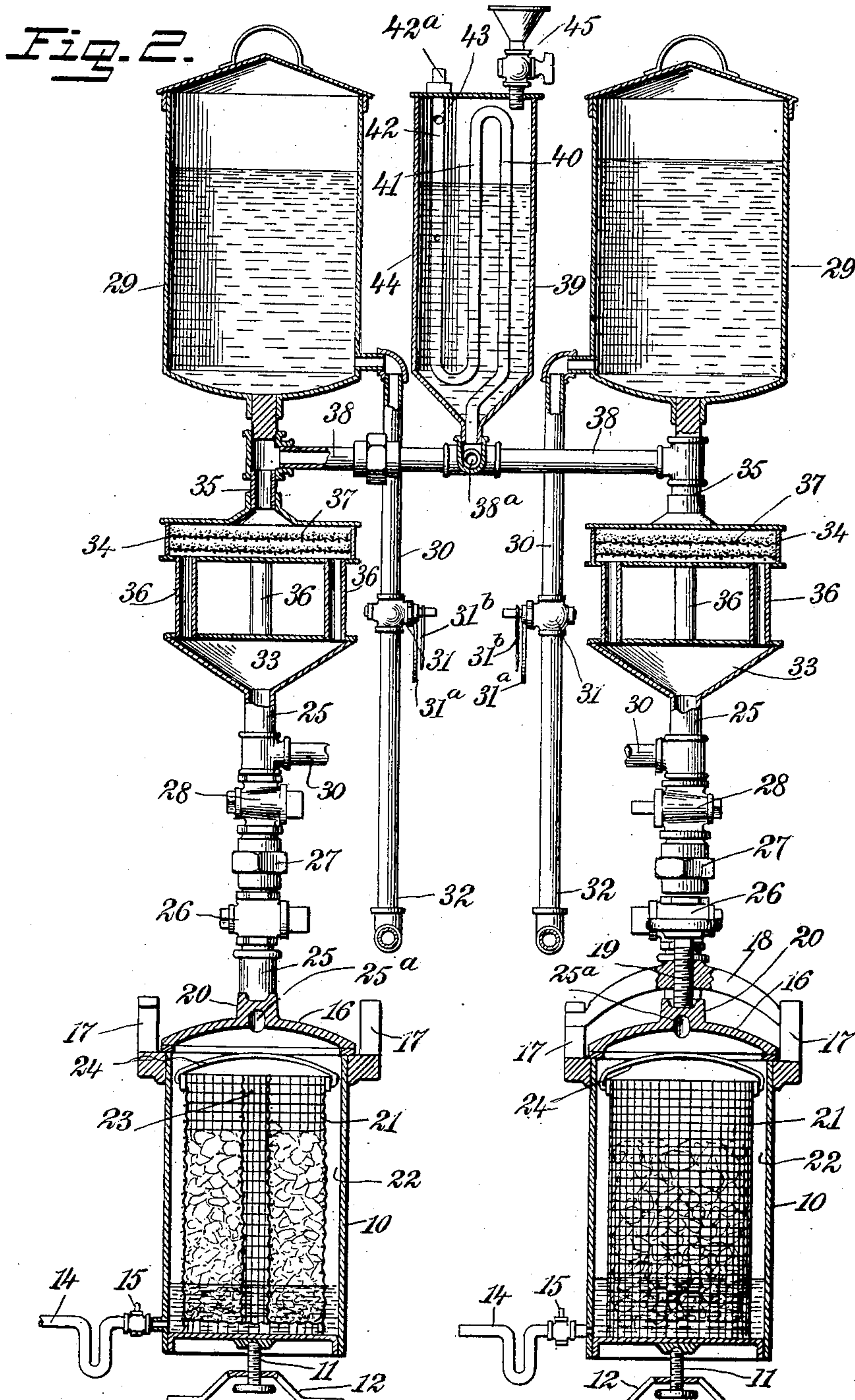
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James F. Duhamel
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UNITED STATES PATENT OFFICE.

NELSON LIKINS, OF ST. PAUL, MINNESOTA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 762,730, dated June 14, 1904.

Application filed October 16, 1902. Serial No. 127,523. (No model.)

To all whom it may concern:

Be it known that I, NELSON LIKINS, a citizen of the United States, and a resident of St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and Improved Acetylene-Gas Generator, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for facilitating the generation of acetylene-gas. It is especially adapted for railway use, although it may be applied to other purposes, as will be apparent to skilled mechanics.

This specification is a specific description of one form of the invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a vertical section thereof. Fig. 3 is a detail section on line 3 3 of Fig. 2, and Fig. 4 is a detail elevation showing the dial and pointer of the valve in the water-supply pipe.

The apparatus is preferably constructed in duplicate form, as shown in the drawings, although the single form may be employed, if desired. According to the construction here shown, 10 indicates the carbid-chambers, which are supported adjustably by screws 11, working in threaded supports 12 for the purpose which will be hereinafter fully brought out. Passing from the bottom of each chamber 10 is a trapped drain-pipe 14, provided with a valve 15, and through the medium of this pipe the water remaining in the chamber 10 after an operation of the apparatus may be withdrawn.

16 indicates the tops of the carbid-chambers, and these are held in place by bows 18 engaging lugs 17, fastened to the upper portions of the carbid-chambers and carrying clamping-screws 19. These clamping-screws are adapted to be forced down against seats 20, formed on the top of the covers 16, and by these means the said covers may be clamped down into place.

21 indicates the carbid-basket, which is formed, preferably, of woven wire and which

is placed in the chamber 10. These baskets are separated from the interior walls of the chambers 10 to form annular spaces 22, which enables the water to be readily drained from the ashes after the operation of the apparatus. Passing down centrally through the carbid-basket 21 is a tube 23, which is also formed of woven wire or other perforated material and which forms a vertical passage extending clear through the carbid-basket. The water is fed into the chamber 10 centrally, so as to fall through the tube 23, and in thus falling it is kept from contact with the carbid. As the water accumulates in the bottom of the chambers 10 it moves upward into the mass of carbid, and therefore attacks the same from the bottom upward.

24 indicates a bail or other means for permitting convenient manipulation of the carbid-basket.

Passing diagonally into and through the tops or covers 16 of each chamber 10 is the pipe 25, which opens into the chamber through the cover, as indicated at the point 25^a in Fig. 2. This pipe 25 is diagonally disposed, so as to clear the bow 18 and screw 19, and thence extends upward, said pipe 25 having above the chamber 10 a gas-valve 26. Above this is a detachable union 27, and above said union is a second gas-valve 28. In order to charge and discharge the gas-chambers 10, it is only necessary to disconnect the union 27 and operate the screws 11, so as to lower the chambers sufficiently to clear the lower section of the pipe 25 from the upper section. Then the chambers may be removed and taken out of the building or car, so as to be charged or discharged. This avoids the escape of gas inside of the building.

Each chamber 10 has a water-supply tank 29. From these tanks pipes 30 pass, and in each pipe is a valve 31, and below these valves are bend-forking traps 32. To the stems of the valves 31 are attached pointers 31^b, and these pointers coact into dials 31^a, attached to the valve-casings. By these devices the valves may be regulated, so that the necessary amount of water may be allowed to pass into the carbid-holders. From the traps the pipes 30 pass upward into the respective pipes 25, so as

to deliver the water thereinto. By this means the water is supplied to the carbid chambers.

At the upper end of each pipe 25 is a condenser. These condensers are formed of lower heads 33 and upper heads 34, the lower heads communicating with the tubes or pipes 25 and the upper heads communicating with pipes 35. Between the heads 33 and 34 vertical tubes 36 extend, these tubes communicating with the heads, so that the gas may pass from one to the other. In the upper heads 34 may be arranged a filter or strainer 37 of any desired construction.

From the pipes 35 branches 38 extend inward toward each other, and from these pipes 38 a pipe 38^a extends to carry off the gas to the point of consumption. A water-seal device communicates with the pipes 38 and will now be described. This water-seal device comprises a tank 39, into which a tube passes from the pipes 38. Said tube extends upward throughout the length of the tank 39 to form a run 40, and from this run a run 41 extends downward, these runs 40 and 41 being connected by a bend, as shown. A third run 42 is formed by extending the pipe upward, the runs 41 and 42 being connected by a bend at the bottom of the tank. The end of the pipe passes out through the top of the tank 39 and is adapted to carry off to the outer air the excess gas. 43 indicates a water and gas outlet opening in the run 42, and 44 indicates a water-inlet opening in said run at a point below the opening 43. The tank 39 is provided with a device 45 for facilitating filling the tank, and, as shown in Fig. 1, this tank is provided with a water-gage 46. 47 indicates a pressure-indicator for showing the pressure of gas within the pipes 38, and 48 indicates water-gages for indicating the height of water in the tanks 29.

In the use of the apparatus the tanks 29 are filled with just sufficient water to supply the carbid-chambers 10, and this water is allowed to flow into said chambers through the pipes 30 and 25, the valves 31, 28, and 26 being open and the valve 31 being adjusted according to the amount of gas needed. The gas generated passes out through the pipes 25 into the condensers 33 36 37, and the purified product passes by the pipes 35, 38, and 38^a to the point of consumption. The gages 48 show the height of the water in the tanks 29, and since these tanks will be filled with only that amount of water which is necessary to the carbid charged into the chambers 10 it may be seen from the gages when the carbid is exhausted. When the pressure of gas in the system becomes abnormal, it will force the water out of the pipe-runs 42 and 41 in the water seal, and the excess gas will pass off into the atmosphere or into any suitable recepta-

cle. The pressure of the gas may be regulated by the height of water in the tank 39.

The apparatus as shown is especially adapted for railway use and in other places where gas-holders cannot be conveniently used. When, however, a gas-holder is to be used, the valves 31 may have a suitable connection with the gas-holder, so as to be automatically operated thereby.

Various changes in the form, proportions, and minor details of my invention may be resorted to without departing from the spirit and scope thereof. Hence I consider myself entitled to all such variations as may lie within the scope of my claims.

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

1. An acetylene-gas generator, comprising a generating-chamber, a pipe extending from the top of the said chamber, a condenser on the upper end of the pipe, and having a pipe leading from its top, a water-reservoir supported upon the pipe leading from the top of the condenser, a trapped and valved water-supply pipe leading from the water-reservoir to the pipe connecting the condenser with the generating-chamber, a pipe connected with the pipe extending from the top of the condenser for carrying off the gas, and a water-seal device connected with the said pipe, as set forth.

2. In an acetylene-gas generator, a generating-chamber having a pipe extending from its top, a condenser on the upper end of the pipe and having a pipe leading from its top, a water-reservoir supported upon the pipe leading from the top of the condenser, a trapped and valved pipe leading from the water-reservoir to the pipe connecting the generating-chamber and condenser, and a pipe leading from the pipe extending from the top of the condenser for carrying off the gas, as set forth.

3. An acetylene-gas generator, comprising a generating-chamber, means for vertically adjusting said chamber, a pipe leading from the top of the generating-chamber, said pipe being in sections with a detachable union between them, a condenser on the upper end of the upper section of said pipe, a pipe leading from the top of the condenser for carrying off the gas, a water-reservoir supported on the upper end of said pipe, and a trapped and valved pipe leading from the water-reservoir and connected to the pipe connecting the generating-chamber and condenser above the union therein, as set forth.

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

NELSON LIKINS.

Witnesses:

GEO. A. PARDOE,
JAMES W. MCHOSE.