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G. M. A. CLAUDE & G. A. HESS.

APPARATUS FOR STORING AND DISTRIBUTING ACETYLENE GAS.

(Application filed Mar. 1, 1897.)

(No Model.)

FIG. 1.

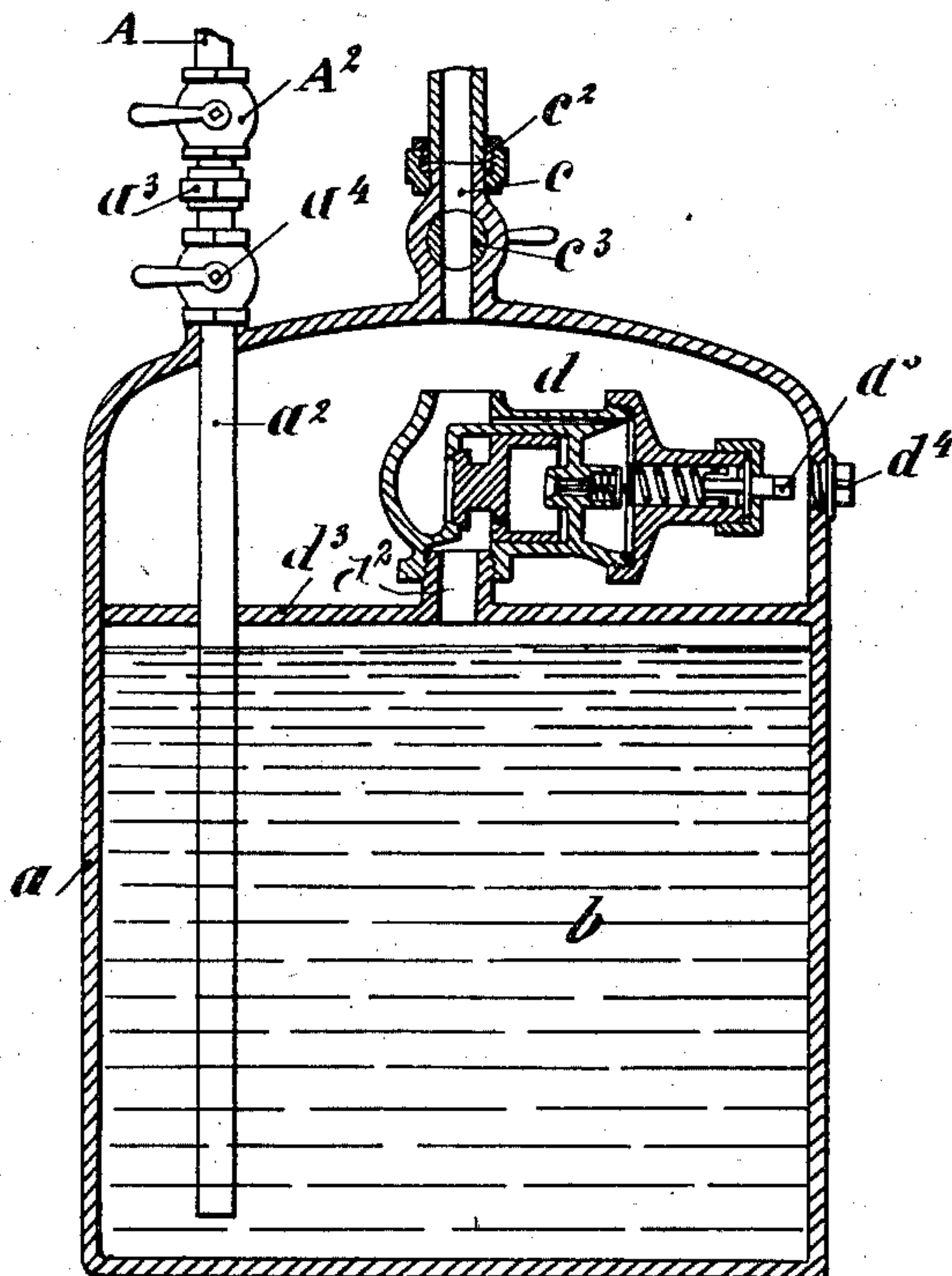
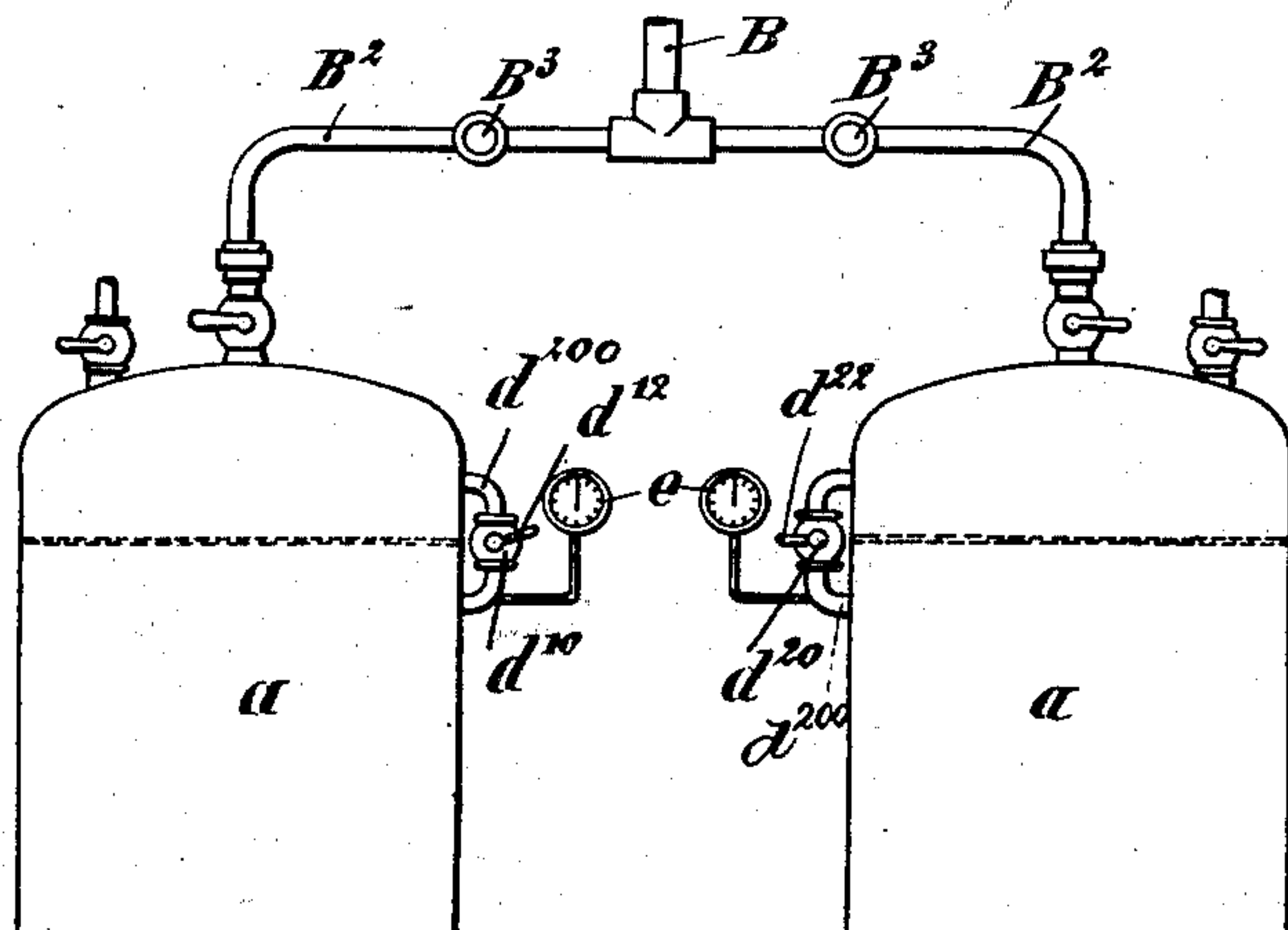


FIG. 2.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR STORING AND DISTRIBUTING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 664,383, dated December 25, 1900.

Application filed March 1, 1897. Serial No. 625,580. (No model.)

To all whom it may concern:

Be it known that we, GEORGES MARIE AUGUSTE CLAUDE, residing at St. Mandé, and GEORGES ALBERT HESS, residing at Paris, France, citizens of the Republic of France, have invented an Improvement in Apparatus for the Storage and Distribution of Acetylene Gas, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention pertains to apparatus for the storage and distribution of acetylene gas, and is designed to carry out a process of storage and distribution involving the employment of a chamber charged with a solvent of the gas to be stored and into which the gas is forced under suitable pressure. The apparatus is to be charged or prepared at a central station or distributing-point and shipped or transported to the intended place of use as a complete article or "package" adapted to be placed in communication with the burners or pipes of a building, room, or space to be lighted or heated.

To this end the apparatus embodying the present invention consists, essentially, in a closed receptacle containing acetylene gas in solution and having an outlet for the gas so positioned as to be normally above the level of said solution and adapted to be provided with a burner or connected with a pipe system for the final use or distribution of the gas which escapes from the solution owing to the diminution of pressure when the said outlet is opened. It is desirable, moreover, that the receptacle which contains the liquid solvent should be conveniently arranged for the charging process as well as for the discharging process, and to that end the said receptacle is shown as consisting of a fluid-tight vessel having an inlet as well as the outlet, the mouth of said inlet being extended below the surface of the solvent liquid, so that gas introduced through the same will pass through the liquid to aid in the solution of said gas. The inlet and outlet passages are provided with suitable valves or cocks to close the same after the receptacle is charged with gas and when it is not in use. It is further desirable for the proper operation of the burn-

ers supplied in this way that the gas should be delivered thereto under a substantially uniform pressure only slightly above the atmospheric pressure, and for this purpose means are provided for controlling the outlet whereby the gas is allowed to escape therethrough at substantially uniform pressure, a reducing-valve being herein shown as interposed between the interior of the receptacle which contains the dissolved gas and the outlet from which said gas is allowed to escape for use.

Figure 1 is a vertical cross-section of the apparatus embodying the invention, and Fig. 2 an elevation showing a modification.

The receptacle or closed vessel *a* is provided with an inlet-tube *a*¹, having a suitable coupling *a*² for connecting the same to the gas-supply pipe *A*, shown as provided with a controlling-valve *A*², whereby the gas-supply may be turned on after the receptacle *a* is coupled to the pipe *A* and turned off after the said receptacle is properly charged, the said inlet-tube being also provided with a valve or cock *a*⁴. Contained within the reservoir is a fluid *b*, such as alcohol or acetone, capable of dissolving acetylene gas.

In order to facilitate the process of solution, the tube *a*¹ is shown as extending downward nearly to the bottom of the receptacle *a*, so that the gas is admitted at a point near the bottom thereof and rises through the liquid as it enters. To discharge the gas from the said receptacle *a*, the upper portion thereof has an outlet-passage *c*, provided with a coupling *c*² for the purpose of connecting it to the pipe system leading to the burners which are to be supplied or to a single burner, and a valve *c*³, adapted to be opened after the receptacle is properly coupled for use.

In order that the gas delivered from the receptacle may pass into the pipes to the burners under a substantially uniform pressure, (the pressure of the gas within the receiver of course decreasing as the gas passes out therefrom,) a reducing-valve *d* of any suitable or usual construction is interposed between the interior of the receptacle and the outlet *c* therefrom. As herein shown, the said reducing-valve is in a passage *d*², connecting the spaces below and above a wall or

partition d^3 near the upper portion of the receptacle a , the dissolved acetylene being contained in that portion of the receptacle which is below the said partition, the portion above being normally empty and forming a reservoir for the gas at low pressure which has passed into said reservoir through the said reducing-valve. In order that the reducing-valve d may be set or adjusted to respond to any desired pressure, the vessel a is shown as provided with a removable plug d^4 , through which access may be had to the adjusting-stem d^5 of said valve. It is obvious that through the agency of the reducing-valve the pressure in said upper reservoir will be substantially uniform, so that the supply of gas in the pipes is properly controlled, the pressure being substantially the same when the receptacle is fully charged as when it is nearly exhausted.

When the gas-storing apparatus is to be connected with supply-pipes for distribution throughout a building, it is desirable to duplicate the apparatus, as shown in Fig. 2, and by setting the reducing-valve d^{10} of one receptacle to respond to a slightly-lower pressure than that of the reducing-valve d^{20} of the other receptacle the receptacle having its valve set for lower pressure will not begin to deliver gas until the contents of the other receptacle are substantially exhausted, after which the one having its reducing-valve set for lower pressure will begin to deliver its contents. In this instance the reducing-valves may be placed at the exterior of the vessels, the passages from the lower to the upper chambers thereof being formed in the tubes d^{200} , and said valves are shown as provided with adjusting-handles d^{12} and d^{22} , whereby they may be readily set, as above described. The two receptacles are shown as connected with a main pipe B through branch pipes B^2 , each of which has a valve or cock B^3 to prevent the escape of gas while either receptacle is being changed. A pressure-gage e may also be supplied for each receptacle to indicate the pressure of the gas contained in solution, and thus to show at a glance when one of the reservoirs is empty and the other is beginning to be drawn upon. At or after this time a charged receptacle may be substituted for the empty one and its reducing-valve set at a slightly-lower pressure than that of the one which is then partially discharged. By this plan it is possible to use up substantially the whole charge of each reservoir without danger of failure of the supply.

It may in some cases be desirable to provide each apparatus with a burner, so that said apparatus in itself constitutes a lamp, or to provide lamp-burners, in conjunction with which the apparatus may be used as a detachable fount.

It is not intended to limit the invention to the specific construction herein shown, since modifications may obviously be made.

We claim—

1. A closed vessel containing a supersaturated solution of acetylene produced by forcing acetylene into a solvent under pressure, said vessel having an outlet for the acetylene gas which escapes from the solvent when the pressure is released or reduced, and means for controlling said outlet whereby the gas may escape therethrough at substantially uniform pressure, substantially as described.

2. A prepared package consisting of a tight shell or vessel; a solvent of acetylene contained within said vessel; and acetylene dissolved in and held by said solvent under pressure and constituting therewith a supersaturated solution, the package being provided at a point above the solvent with a reducing-valve, substantially as and for the purpose set forth.

3. The herein-described apparatus for storing gas and delivering it at a substantially uniform rate, the same comprising a shell or vessel a containing a supersaturated solution of gas; a valved inlet-pipe a^2 extending to a point near the bottom of the chamber a ; a horizontal diaphragm d^3 extending across the chamber in its upper portion and provided with a passage d^2 ; a reducing-valve d applied to said opening; and a valved outlet-pipe c through which the gas after passing the reducing-valve may escape to the main or distributing pipes.

4. In an apparatus for storing and delivering gas, a vessel containing a supersaturated solution of gas; an inlet-pipe opening into said vessel near the bottom of the chamber provided for the solvent; an outlet-opening from the solvent-chamber above the level of the solvent; and a reducing-valve applied to said outlet and serving to permit escape of the gas in regulated and uniform quantity.

5. As a new article of manufacture, a gas-package comprising a holder or tight vessel; a contained charge of acetone; a volume or body of gas dissolved by and compressed and contained within the solvent; and a reducing-valve applied to an opening extending to the interior of the holder above the level of the solvent, substantially as set forth.

6. The herein-described holder for gas, comprising a tight vessel having a chamber to receive a solvent of the gas, an outlet for the gas in the upper part of said chamber, a reducing-valve applied to said outlet, means for temporarily sealing the vessel completely; and a body of solvent contained within the vessel and adapted to receive a charge of gas under pressure and to form therewith a supersaturated solution.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGES MARIE AUGUSTE CLAUDE.

GEORGES ALBERT HESS.

Witnesses:

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