

(No Model.)

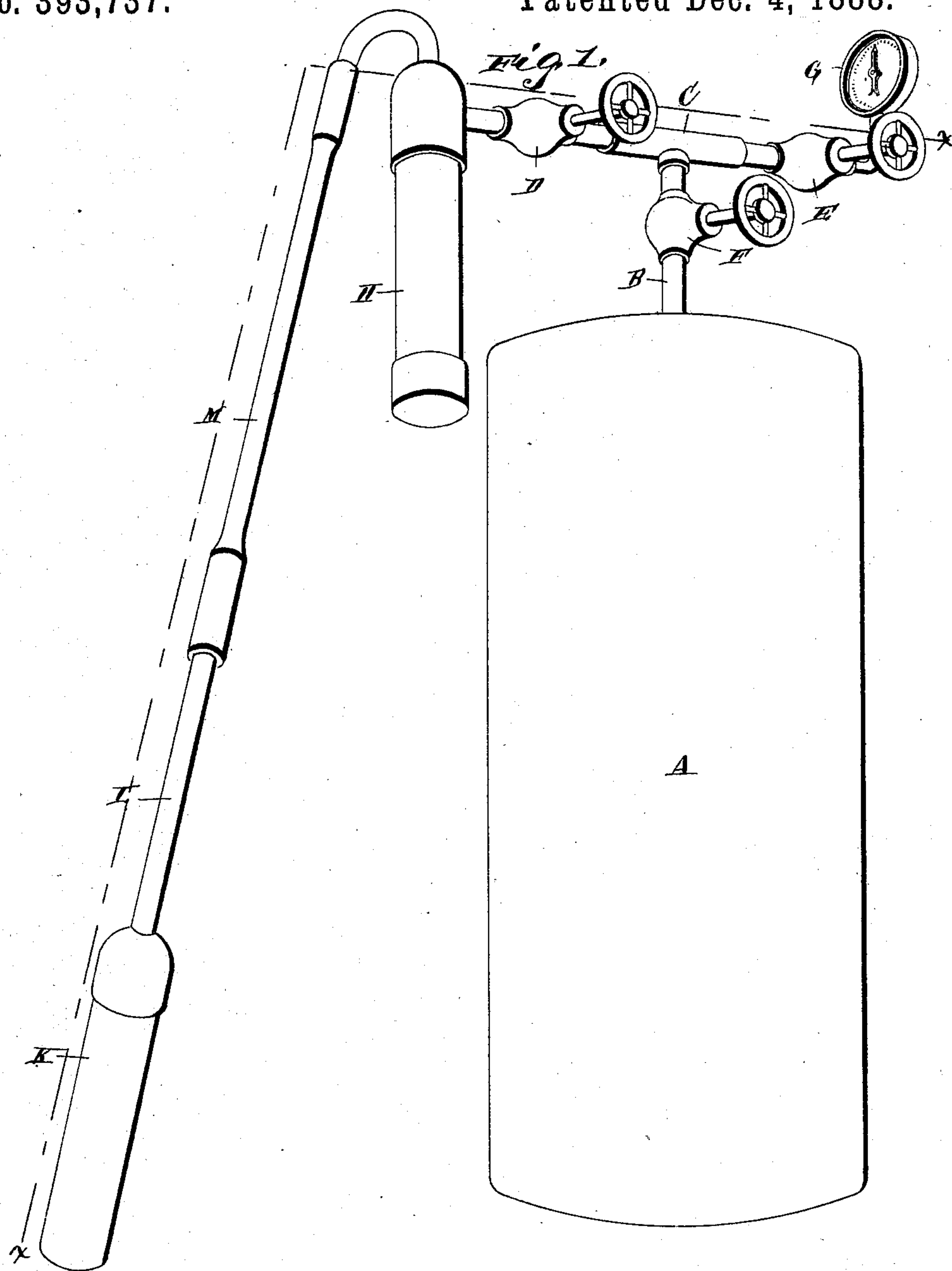
2 Sheets—Sheet 1.

I. R. B. ARNOLD.

APPARATUS FOR GENERATING AND STORING OXYGEN.

No. 393,737.

Patented Dec. 4, 1888.



Witnesses.

O. B. Taylor
J. C. Barnes

Inventor.

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Attorneys.

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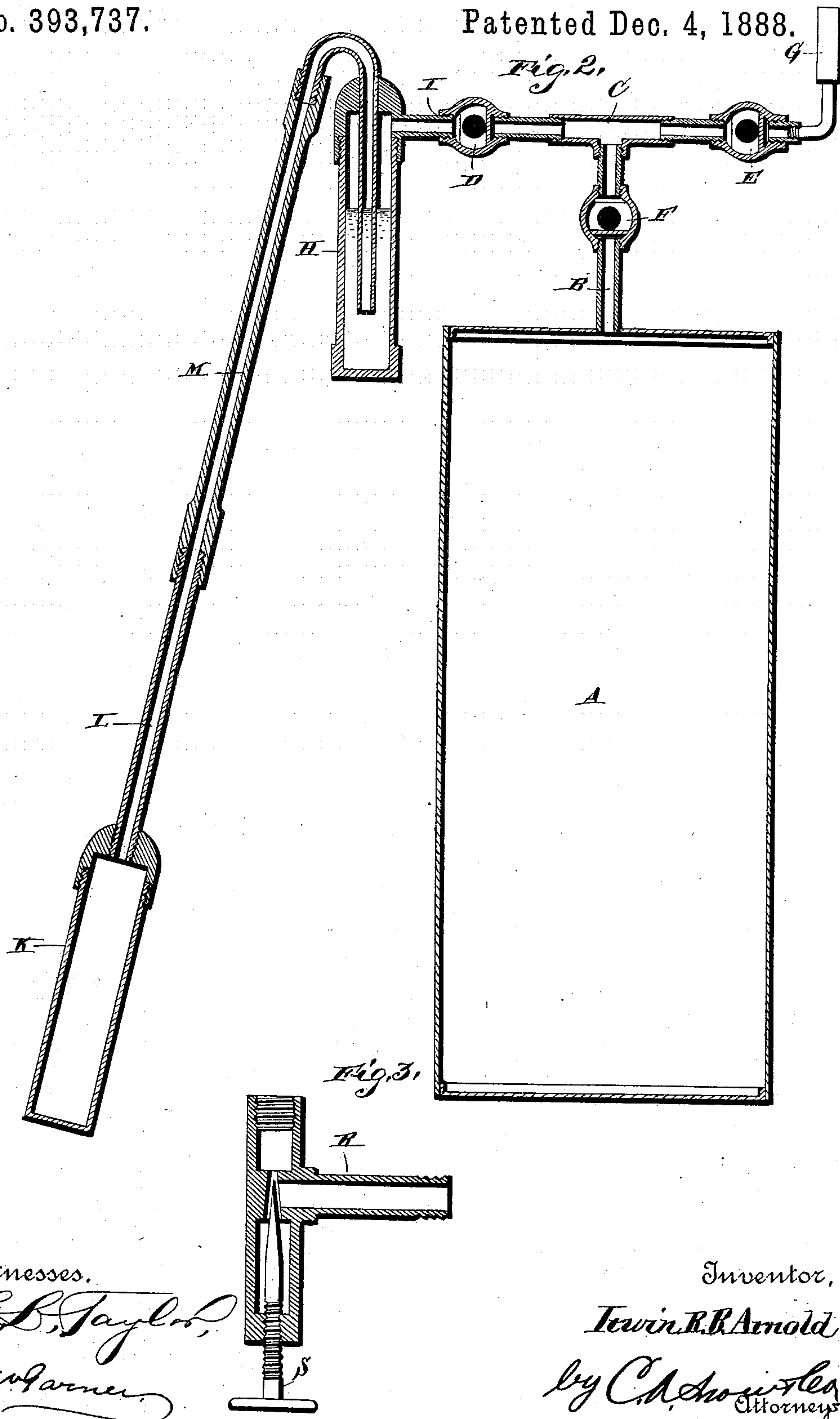
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C. B. Taylor

J. Warner

Inventor,

I. R. B. Arnold

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Attorneys.

UNITED STATES PATENT OFFICE.

IRWIN R. B. ARNOLD, OF WHEATON, ILLINOIS.

APPARATUS FOR GENERATING AND STORING OXYGEN.

SPECIFICATION forming part of Letters Patent No. 393,737, dated December 4, 1888.

Application filed December 19, 1887. Serial No. 258,367. (No model.)

To all whom it may concern:

Be it known that I, IRWIN R. B. ARNOLD, a citizen of the United States, residing at Wheaton, in the county of Du Page and State of Illinois, have invented a new and useful Improvement in Apparatus for Generating and Storing Oxygen, of which the following is a specification.

My invention relates to an improvement in apparatus for generating and storing oxygen; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of the apparatus embodying my improvement. Fig. 2 is a vertical sectional view of the same, taken on the line xx of Fig. 1. Fig. 3 is a detail view of an attachment.

A represents a cylindrical receiver or reservoir, from the upper end of which extends a vertical pipe, B.

C represents a pipe, which has its central portion connected to the upper end of pipe B, said pipe C being arranged horizontally and having its extremities projecting in opposite directions, one arm of the pipe C provided with a globe-valve or stop-cock, D, and the other arm thereof is provided with a globe-valve or stop-cock, E. The pipe B is provided with a globe-valve or stop-cock, F.

G represents a pressure-gage, which is adapted to be connected to one end of pipe C by means of a screw-joint, as shown.

H represents a wash-bottle, of suitable construction, which is adapted to be connected to the opposite end of pipe C by means of a screw-joint, I.

K represents the retort, from one end of which extends a pipe, L.

M represents a connecting-pipe, which is adapted to be connected to one end of the pipe L by a joint, N, and to the goose-neck P at the upper end of the wash-bottle by means of a screw-joint, O.

R represents a T-coupling, which is adapted to be attached to one end of the pipe C when the wash-bottle is disconnected therefrom, the said T-coupling being adapted for the attachment of a pipe to lead to a calcium light, and the said T-coupling is provided with

a needle-valve, S, by means of which the quantity of gas discharged from the receiver or reservoir can be regulated.

The object of my invention is to provide an apparatus by means of which oxygen may be conveyed from the retort, under pressure, to the receiver and stored in the latter without the necessity of employing a pump or other means for forcing the oxygen from the retort into the receiver, and thereby effecting an economy in the structure of the apparatus and enabling the same to be placed on the market at a small cost.

The operation of my invention is as follows: The stop-cocks D, E, and F are normally closed, the wash-bottle is normally disconnected from the pipe C, and the retort is normally disconnected from the wash-bottle. The retort is first heated over a moderate fire until it is hot and dry, when it may be laid across a pail of cold water and water poured over it until the upper portion of the retort is cold. Care is then taken to see that the packing in the screw-joints is ready for coupling the parts of the apparatus together, the wash-bottle is loosely jointed to the arm C, the connecting-pipe M is firmly joined to the goose-neck of the wash-bottle, and a charge of mixed chlorate of potash and black oxide of manganese is placed in the retort, and the pipe L is then firmly jointed to the pipe M. Oxygen is immediately generated in the retort and expels the air therefrom through the loose joint which connects the wash-bottle to the pipe C, and the said joint is then tightly secured and the stop-cocks or globe-valves D, E, and F opened, thereby permitting the oxygen to be discharged directly into the receiver and stored therein at a sufficiently high pressure. By noting the pressure-gage the pressure of the oxygen in the receiver may be ascertained at any time, and when it is observed that the pressure is at its maximum and the oxygen is all accumulated in the receiver the globe-valves or stop-cocks are closed, so as to prevent the escape of the oxygen from the receiver, and the wash-bottle and the retort are then disconnected. In order to convey the oxygen to a calcium light or other point where it is to be used, the T-coupling R is screwed to one end of the pipe C, and a suitable conveying-pipe is also attached to the said T-coupling. The

globe-valves or stop-cocks are then opened, which permits the oxygen to flow through the f-coupling to the light or other point where it is consumed, and by means of the needle-valve S the flow of the oxygen from the receiver may be regulated at will.

Having thus described my invention, I claim—

In apparatus for generating and storing oxygen, the combination of the receiver A, having the pipe B, provided with a valve, F, and a pipe, C, connected to pipe B and provided with the valves D and E, the pressure-gage adapted to be connected to pipe C or disconnected therefrom, the wash-bottle adapted to

be connected or disconnected from the opposite end of pipe C, the retort, and means, substantially as described, to couple the same to the wash-bottle, whereby the oxygen generated in the retort will be forced by its own expansion directly into the receiver and stored therein, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

IRWIN R. B. ARNOLD.

Witnesses:

C. B. SMITH,

C. A. PROUT.