

(No Model.)

J. W. TALLMADGE.
APPARATUS FOR MAKING HYDROGEN GAS.

No. 436,812.

Patented Sept. 23, 1890.

Fig 1.

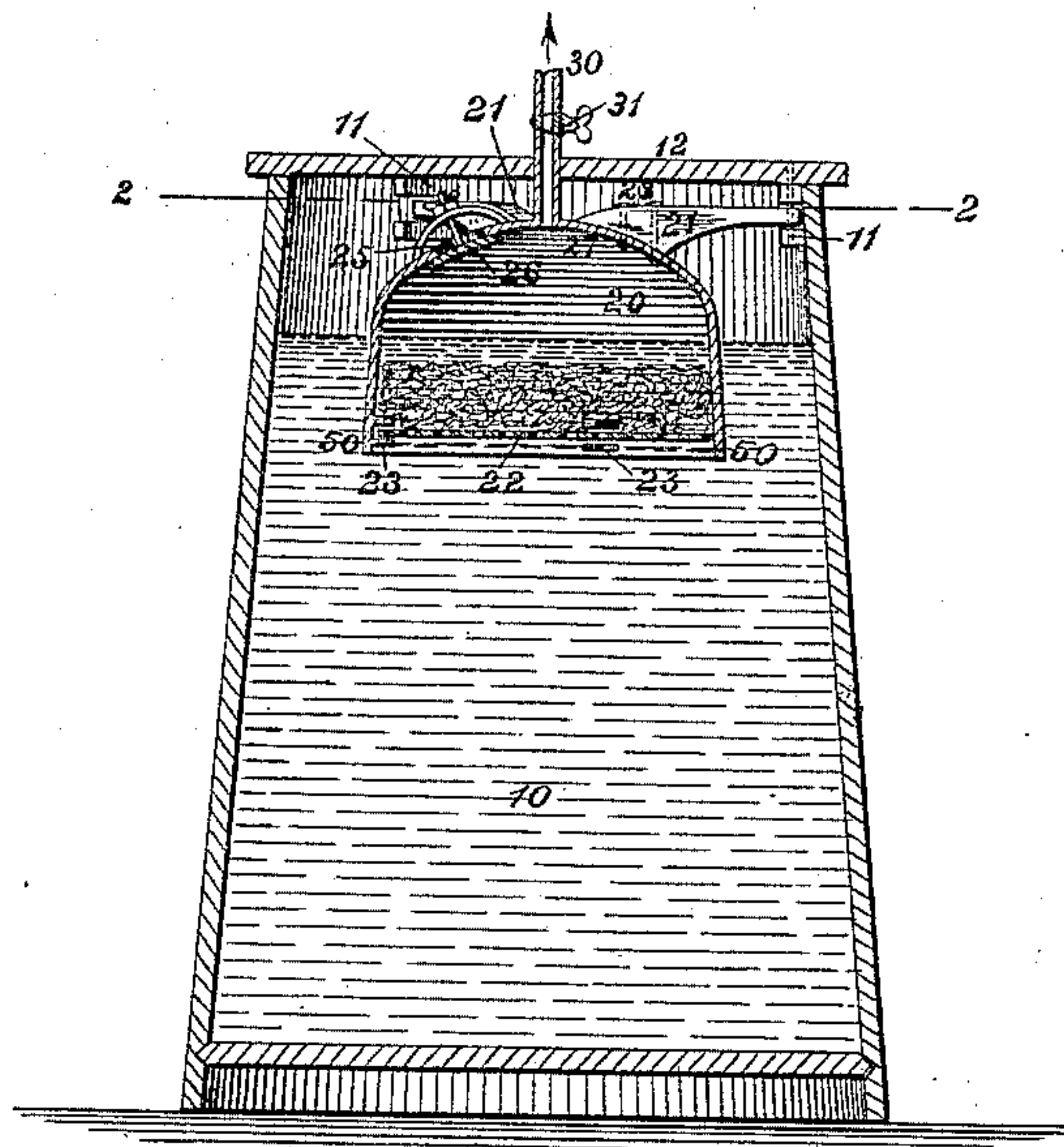


Fig 2.

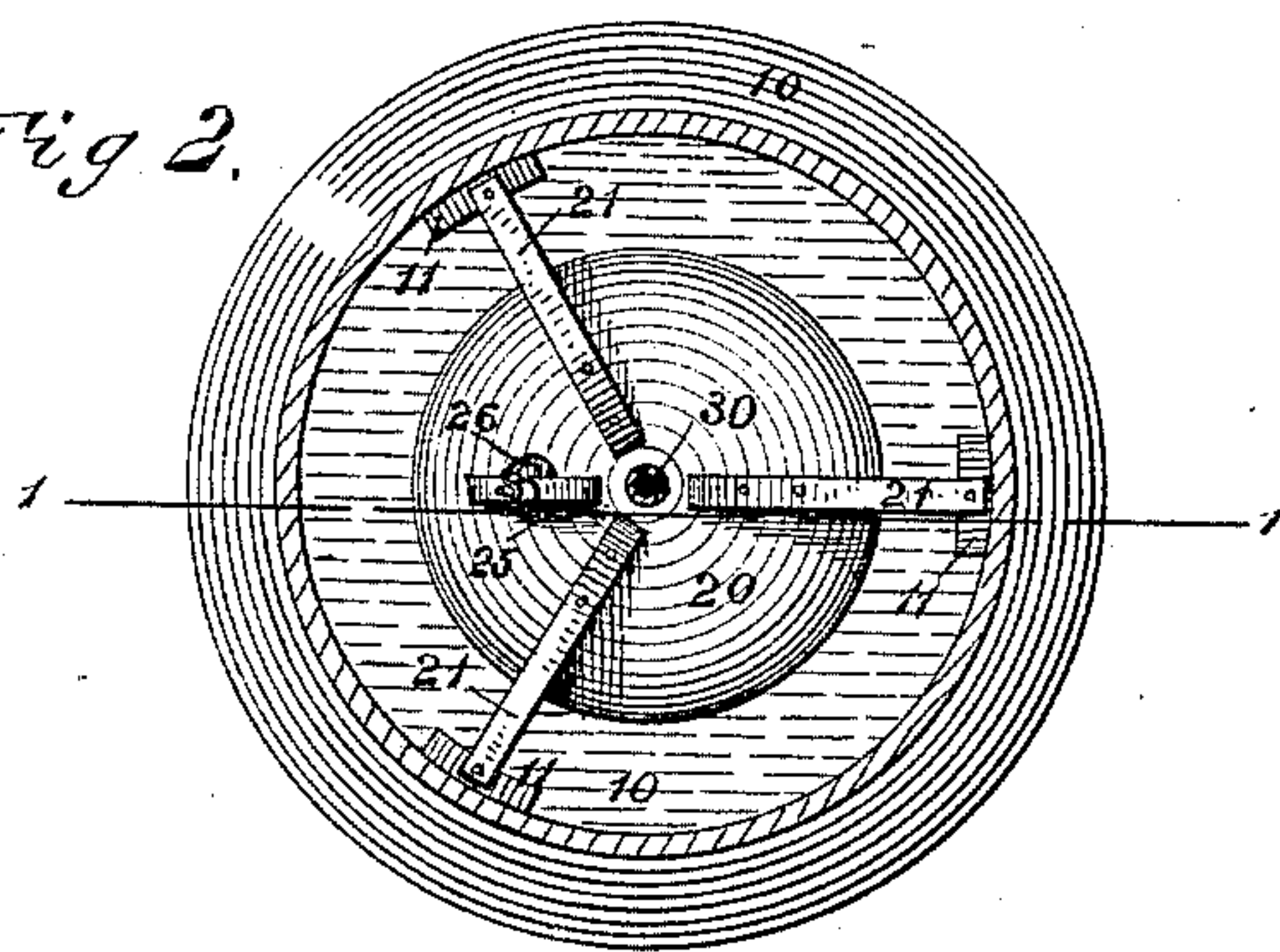
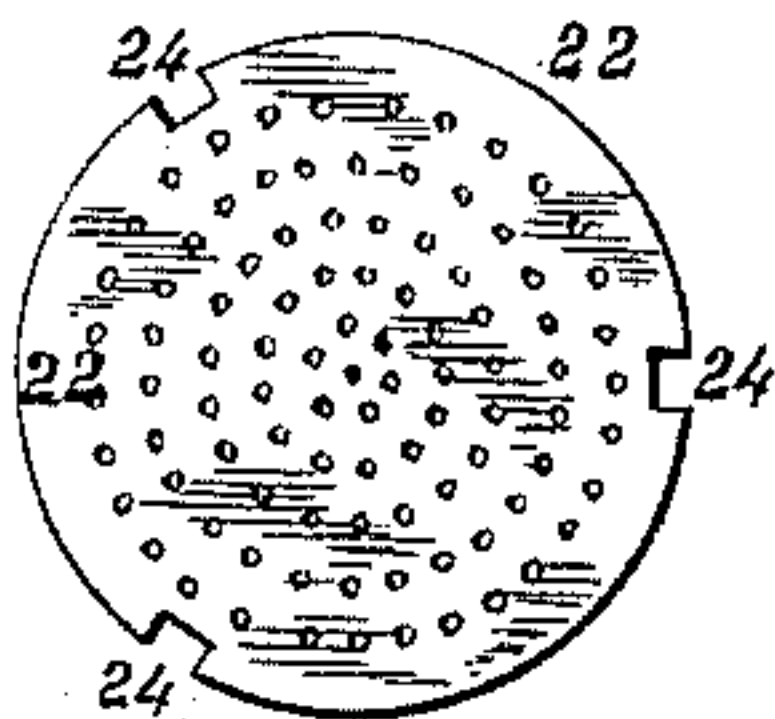


Fig 3



WITNESSES

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APPARATUS FOR MAKING HYDROGEN GAS.

SPECIFICATION forming part of Letters Patent No. 436,812, dated September 23, 1890.

Application filed March 8, 1890. Serial No. 343,144. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. TALLMADGE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Making Hydrogen Gas; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to an apparatus for the production of a carbureted hydrogen gas, and especially adapted for the illumination of buildings.

Figure 1 of the accompanying drawings is a vertical section of this improved gas apparatus. Fig. 2 is a plan view thereof. Fig. 3 is a plan of the perforated diaphragm within the dome.

Similar numerals of reference indicate corresponding parts in the different figures.

The tank 10, for containing the acid solution, is constructed of any suitable material, and has a capacity for a large quantity of the solution. It is provided near its top with inwardly-projecting lugs 11, arranged in pairs at suitable points on the interior of the tank, near the top thereof. A cover 12 serves to cover the top of the tank, if desired. A dome 20, of a cubic capacity much smaller than that of the tank, is disposed within the tank near the top thereof. The interior capacity of the dome is preferably equal to the annular space between the dome and the tank. Horizontal arms 21, having elongated curved faces 27 at their undersides near their inner ends fitting the curvature of the top of the dome, are attached to said top by means of bolts 28, the outer ends of said arms engaging the lugs 11 of the tank 10. These arms serve as supports for suspending the dome within the tank, as braces for strengthening and stiffening the top of the dome, and as handles by which the dome may be lifted from the tank when desired. The dome is open at the bottom and provided with a perforated diaphragm 22, disposed above its lower edge, and it is further provided at its top with a hand-hole 25, closed by a hand-hole plate 26. The perforated diaphragm is removable, being supported on lugs 23 on the interior of the dome, and provided with notches 24, which permit the diaphragm to pass the lugs when being inserted and removed. An education-pipe 30, provided with a stop-cock

31, extends upward from the top of the dome and connects with the service-pipes of the building for the passage of gas to the burners. 55

In the use of the apparatus a dilute sulphuric-acid solution is placed in the tank, the latter being filled to a point above the lower portion of the dome, and scrap-iron or other suitable metal is passed through the hand-hole of the dome onto the perforated diaphragm thereof. A hydrocarbon liquid is filled into the dome through the hand-hole and rests on the top of the acid solution within the dome. 65

The operation of the apparatus is as follows: The acid solution enters the lower portions of the dome through the perforated diaphragm thereof and submerges or partially submerges the metal on the diaphragm. The action of the acid on the metal generates hydrogen gas, which rises through the hydrocarbon liquid on the solution and becomes impregnated with hydrocarbon vapor. The carbureted gas so formed accumulates in the top of the dome and passes through the education-pipe 31 for supplying the burners connected therewith. When the burners are shut off, a sufficient quantity of gas accumulates in the dome to force down the liquid until the acid solution falls below the perforated diaphragm of the gas-holder, as indicated by dotted line 50, and the metal becomes submerged in the hydrocarbon liquid and the formation of gas ceases. 85

I claim as my invention—

In a gas apparatus, the combination of a tank for containing an acid solution provided near its top with inwardly-projecting lugs, a dome open at its bottom to permit said solution to rise within the interior thereof, said dome being provided with a perforated diaphragm disposed above its base for supporting metal to be acted on by said solution, and horizontal arms attached at their inner ends to the top of said dome, said arms being provided with elongated curved faces fitting said top and at their outer ends engaging the lugs of said tank. 95

JAMES W. TALLMADGE.

Witnesses:

F. C. SOMES,
C. A. WEED.