

No. 639,188.

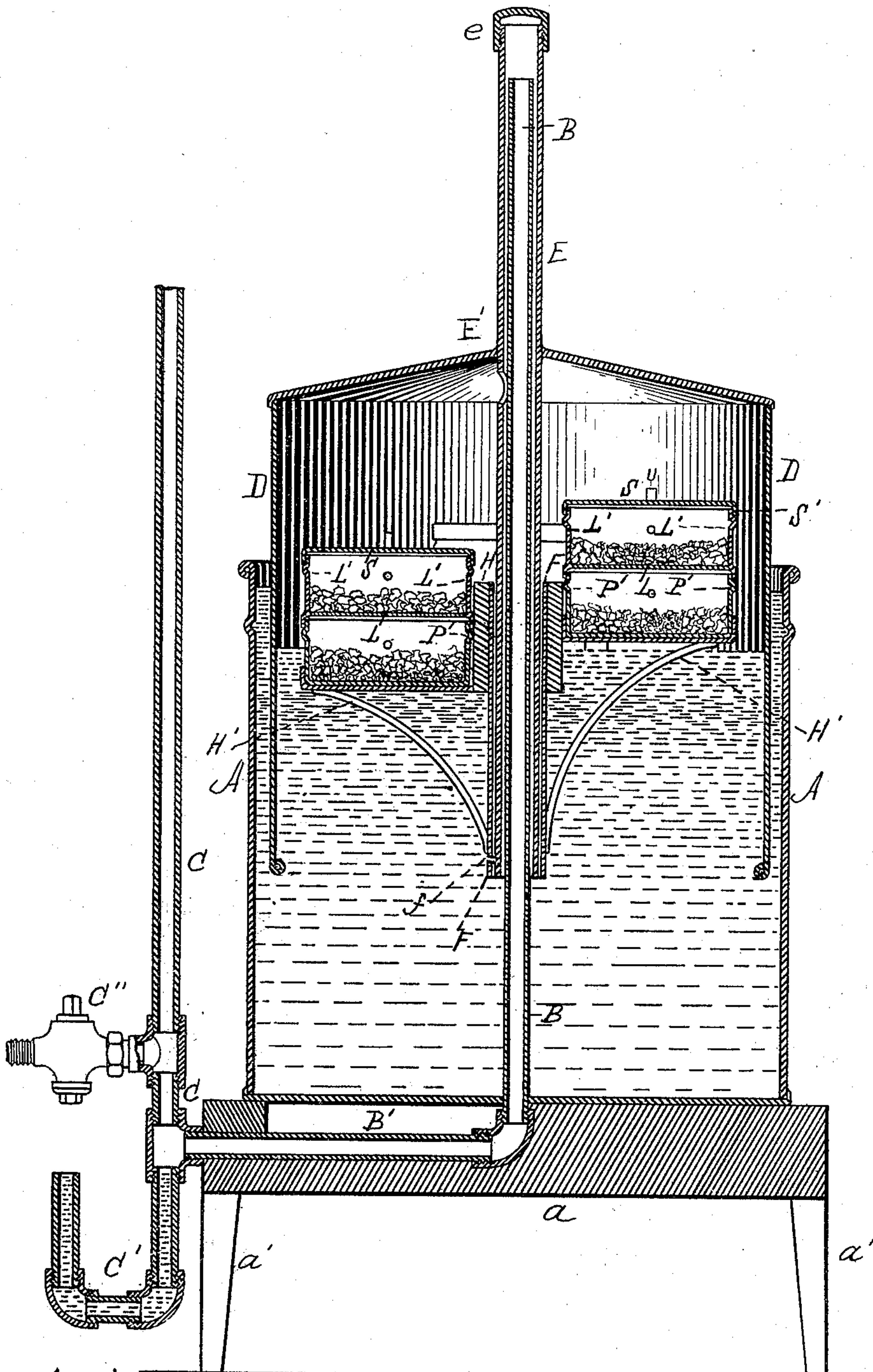
Patented Dec. 12, 1899.

J. W. TALLMADGE.
ACETYLENE GAS APPARATUS.

(Application filed July 3, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

A. A. Bounay,
E. A. Luth

FIG - 1 -

INVENTOR

James W. Tallmadge
By His Atty
Sherry W. Williams

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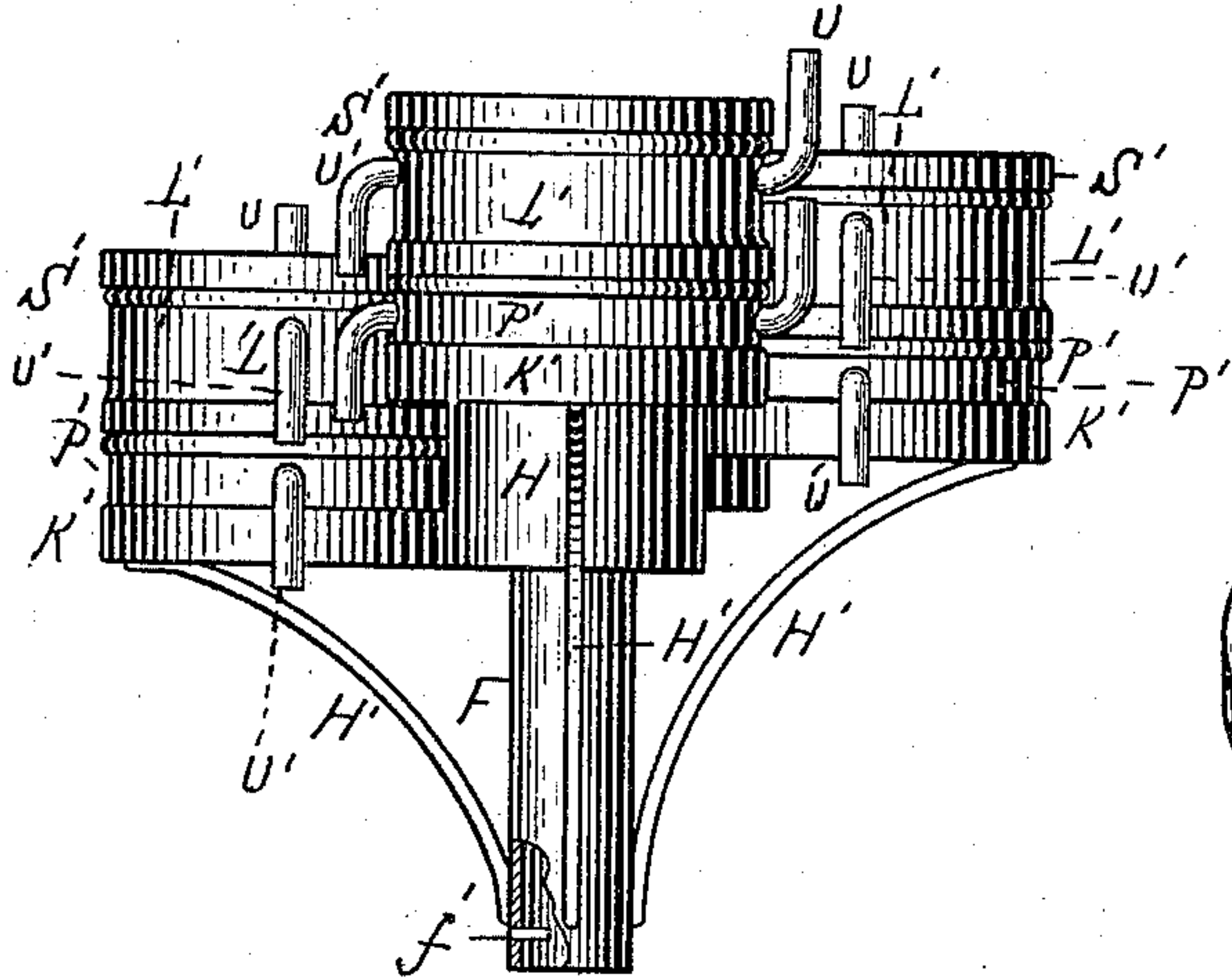


Fig. 2.

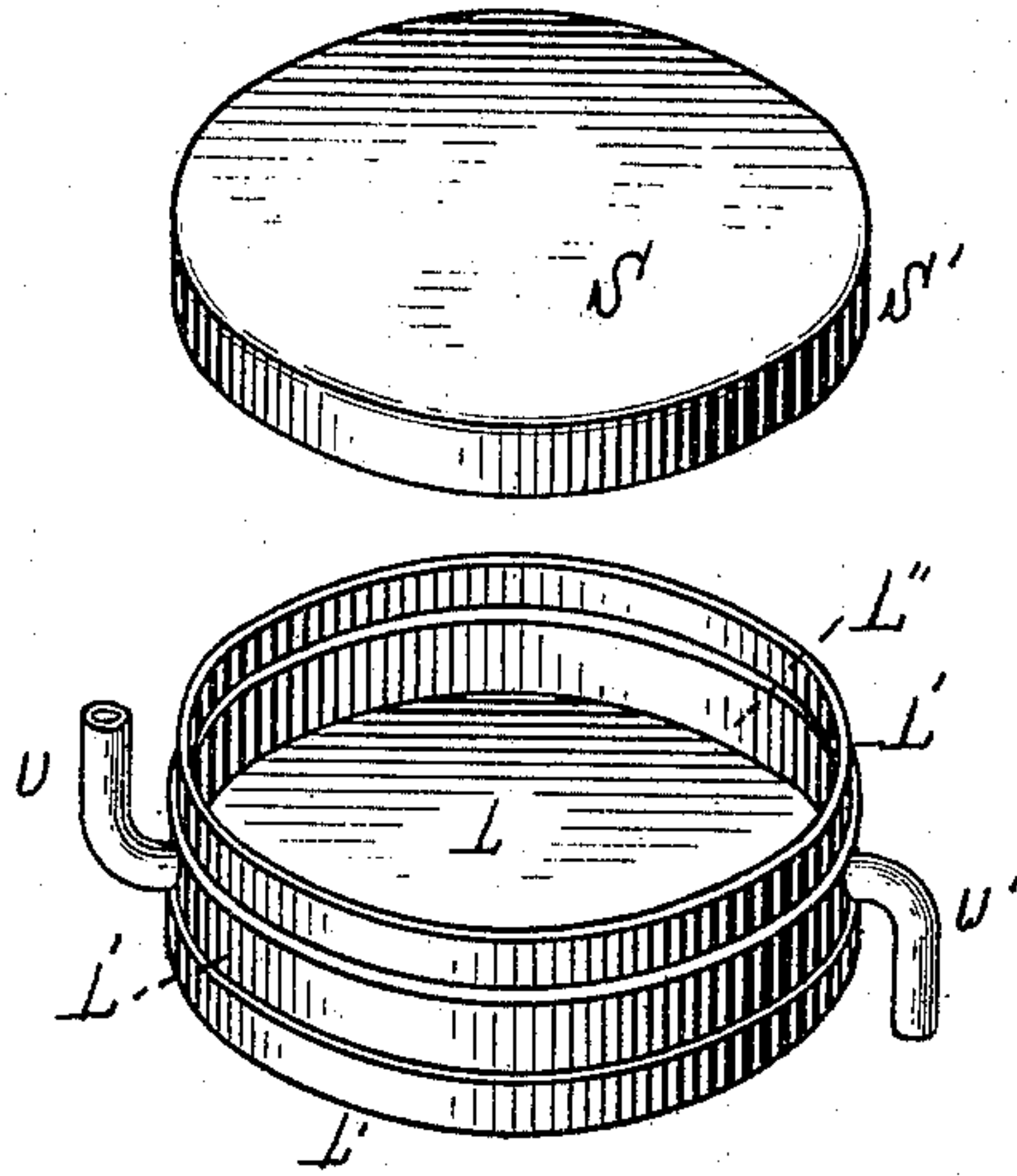


Fig. 3.

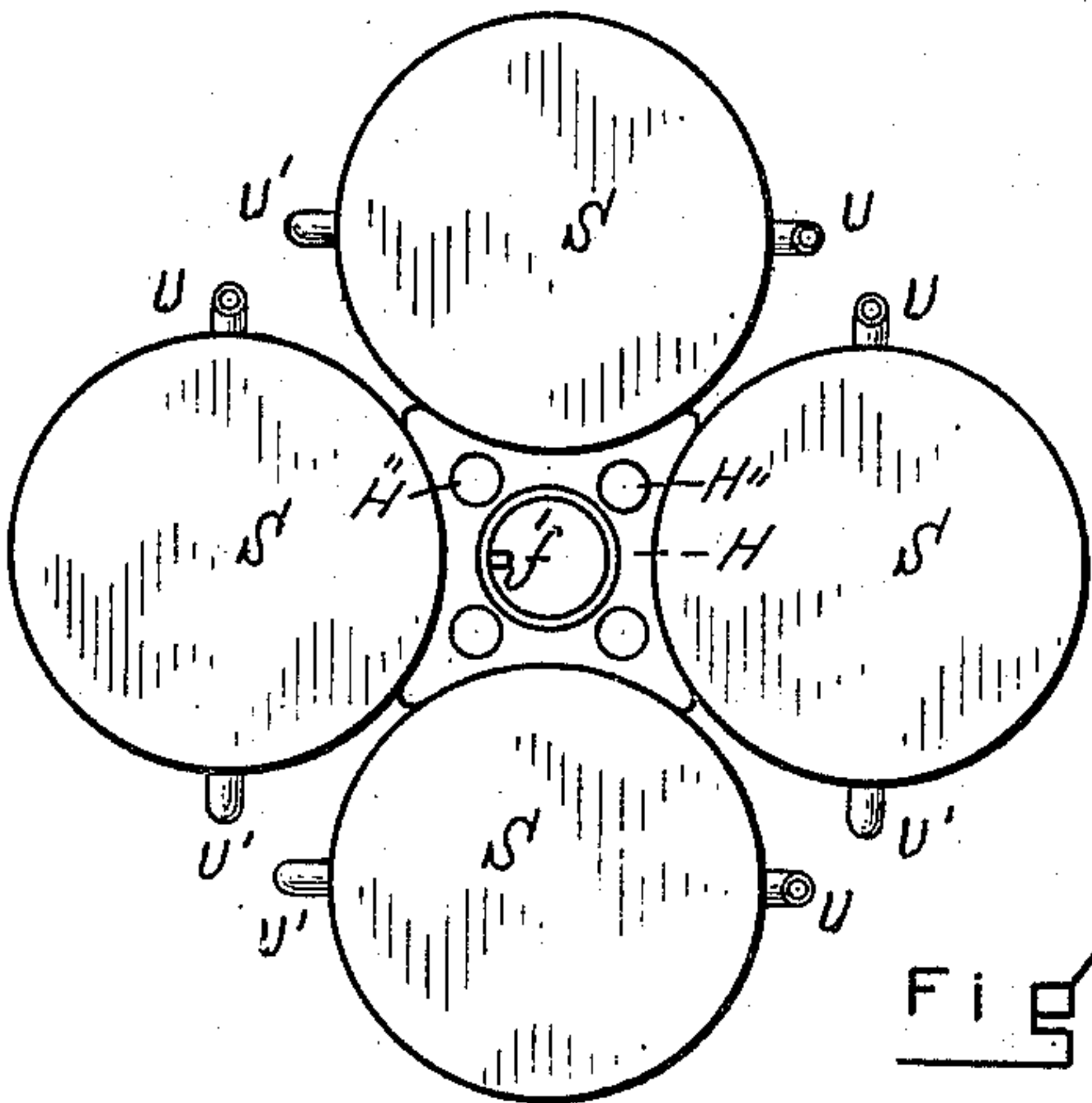


Fig. 4.

WITNESSES:

A. A. Bonney.
E. A. Swett.

INVENTOR:
James W. Tallmudge.
By his Atty
Sherry C. Williams

UNITED STATES PATENT OFFICE.

JAMES W. TALLMADGE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO WILL O. MERRILL, OF SAME PLACE.

ACETYLENE-GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 639,188, dated December 12, 1899.

Application filed July 3, 1899. Serial No. 722,684. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. TALLMADGE, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for the Manufacture of Acetylene Gas, of which the following is a specification.

This invention relates to apparatus for the manufacture of acetylene gas by the application of water to carbid, the supply of water being automatically controlled by the pressure of the gas generated from the carbid; and the invention or improvement consists of a certain novel construction and arrangement of parts, fully described below, whereby the water is brought into successive contact with a number of comparatively small quantities of carbid, each arranged in a compartment or receptacle by itself and entirely independent of and separate from the rest of the carbid, so that the gas is generated successively from a considerable number of small masses of carbid instead of being generated at one operation from a single large mass thereof. Thus there is but a very gradual vertical movement of the bell and a steady and continuous operation of the apparatus.

In the accompanying drawings, in which similar letters of reference indicate corresponding parts, Figure 1 represents a central vertical section of an acetylene-gas apparatus embodying my invention. Fig. 2 is a side elevation of a nest or series of carbid receptacles or boxes removed, a small portion being represented as broken out. Fig. 3 is a perspective view showing one of said receptacles with its parts separated in order to illustrate the arrangement of the two compartments therein. Fig. 4 is a top or plan view of the nest of carbid-receptacles illustrated in Fig. 2.

A represents a water-tight tank open at the top and set on a suitable base *a*.

B represents a vertical pipe supported by the base *a* and extending up centrally through and for a considerable distance above the tank A. The lower end of this pipe connects with the pipe B', whose outer end is connected with a pipe C, through which gas is

supplied to a room or building. The pipe C' constitutes an ordinary trap.

C'' is a common vent-cock, to be opened when the bell is removed to replenish the carbid.

D is a bell of suitable diameter to enter the tank A, closed at the top and provided with the pipe or tube E, which extends through said top and well down over the pipe B, thus steadying the bell in its position. This pipe is provided with an opening E', connecting with the air or gas chamber in the bell and with a cap *e* on its upper end.

F is a sleeve which is set around the lower portion of the pipe E and is removably secured thereto in any desired manner, such as by means of a slot *f* in the pipe E and a pin *f'* in the sleeve F, Fig. 2. This sleeve F has rigidly secured to and around it a central frame or collar H and a set of supporting-braces H', said frame and braces supporting a series of four trays or saucers K, preferably circular in shape, and provided with the upwardly-extending flanges or sides K'. These four trays are set at different heights, no two being at the same height, and each supports a pair of receptacles or boxes set one above the other. Each pair of these receptacles consists of the following parts, viz.: a disk L, Fig. 3, provided with a vertical ring or flange L', extending both above and below the disk, a tray or saucer P, provided with sides P', adapted to set up into the lower portion of the ring L', and a cover S, whose side or flange S' is adapted to set over and upon the upper edge of the flange L'. Thus the disk L, lower part of the ring L', and the tray P P' constitute one receptacle for the carbid, while the disk L, upper portion of the ring L', and the cover S S' constitute another receptacle for the carbid. Thus there are four pairs of receptacles providing eight independent and separate chambers or boxes for carbid, and no one of the eight chambers or boxes is on a level with any of the others. The portion of the flange or ring L' which is above the disk L and the sides P' are provided with substantially opposite holes, from which extend upwardly-turned and downwardly-turned teats U and U'. The

openings connecting with the teats U are of the same height as those connecting with the teats U'; but the teats U', which are practically inlet-pipes, extend downward below the openings, while the teats U, which are practically outlet-pipes, extend upward from the openings.

In practical operation the surface of the water comes in contact through the teats or inlet-pipes U' with but one mass of carbid at a time, as shown in Fig. 1. The first mass of carbid which comes in contact with the water is that which is in the tray P P'—that is to say, in the lower one of the two compartments constituting the lowest pair of receptacles. The acetylene gas formed by this mixture of the carbid with water passes through the teats or outlet-pipes U into the bell and thence through the opening E' into the pipe E, thence into the upper end of the pipe B, and thence through the pipe B' into the supply-pipe C. As the gas is used and partially exhausted from the bell the nest of receptacles sinks until the next highest receptacle comes in contact with the water, when the same process is gone through with, the carbid in the different receptacles or chambers successively providing gas for the bell through the upturned pipes U, leading from the boxes, and acting on the water through holes H'' in the frame H. Thus there is never but one comparatively small mass of carbid which is producing acetylene gas, so that the vertical vibration or movement of the carbid-receptacles and bell is exceedingly slight, there being practically no real vibration or vertical reciprocation.

The openings in the sides of the carbid receptacles or boxes are at such a distance below the upper walls or tops thereof that there is space left for the air or gas, or both, in the upper portions of the receptacles, so that said receptacles above the carbid are practically small bells in the sense that the part D is a bell, and hence neutralize the weight of the receptacles and their contents and enable them to float instead of sinking in the water.

By means of the upwardly-bent and downwardly-bent teats U' U the inlet end of the former is much below the outlet end of the latter, and hence while the direct openings to the receptacle are at the same height there is no clogging, inasmuch as one opening serves as an inlet and the other as an outlet.

It is evident that the nest of carbid-receptacles may include more chambers or compartments than have been illustrated, arranged both radially and piled on each other.

It will be seen that this apparatus or gas-machine possesses the qualities also of a gas-

ometer and gas-governor and greatly enhances the steadiness and evenness of the production and flow or supply of acetylene gas.

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

1. In an apparatus of the character described for the manufacture of acetylene gas, the combination with the tank A and bell D; of a number of radially-arranged vertical piles of carbid-receptacles, each pile comprising the disk L provided with the ring or flange L' extending both above and below said disk, the bottom P and upwardly-extending sides P' overlapping the lower portion of the flange L', and the top S and downwardly-extending sides S' overlapping the upper portion of the flange L', said sides L' and P' being provided with openings for the admission of water and escape of gas; and a gas-supply pipe extending from the gas-chamber within the bell, substantially as set forth.

2. In an apparatus of the character described for the manufacture of acetylene gas, the combination with the tank A and bell D; of a number of radially-arranged vertical piles of carbid-receptacles, each pile comprising the disk L provided with the ring or flange L' extending both above and below said disk, the bottom P and upwardly-extending sides P' overlapping the lower portion of the flange L', and the top S and downwardly-extending sides S' overlapping the upper portion of the flange L'; the upwardly-extending pipe U connecting through the upper portion of the flange L' above the disk or partition L with the interior of the upper receptacle; the downwardly-extending pipe U' connecting through the lower portion of the flange L' with the interior of the lower receptacle; and a gas-supply pipe extending from the gas-chamber within the bell, substantially as described.

3. The hereinbefore-described improved apparatus for the manufacture of acetylene gas, comprising the tank A; the bell D; the pipe B extending centrally from said tank up through the bell; the gas-supply pipe E extending from the bell down over said pipe B and the orifice E' opening into the bell; the sleeve F around said pipe E and provided with the frame H; and a plurality of independent carbid-receptacles secured at different heights to said frame, each communicating independently with the interior of the apparatus, substantially as described.

JAMES W. TALLMADGE.

Witnesses:

HENRY W. WILLIAMS,
A. N. BONNEY.