

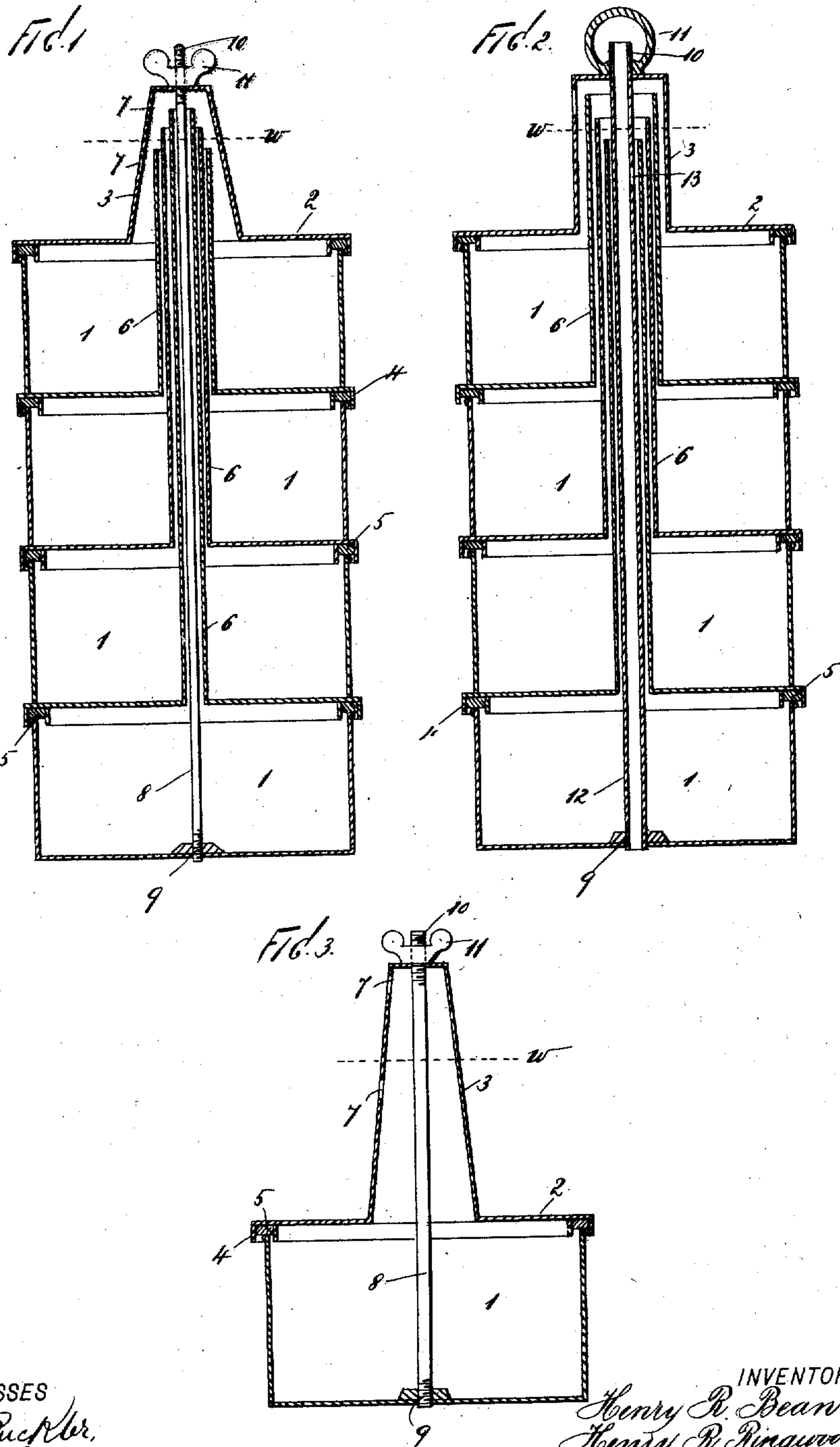
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Patented June 26, 1900.

H. R. BEAN & H. R. RINGWOOD.  
APPARATUS FOR GENERATING ACETYLENE GAS.

(Application filed Sept. 29, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR GENERATING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 652,239, dated June 26, 1900.

Application filed September 29, 1899. Serial No. 732,057. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY RALPH BEAN and HENRY ROBERT RINGWOOD, subjects of the Queen of Great Britain, residing at Plaistow, London, in the county of Essex, England, have invented certain new and useful Improvements in Apparatus for Generating Acetylene and Similarly-Obtained Gases, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for generating acetylene and similarly-obtained gases; and it has for its object to provide a simple and improved apparatus of this character in which small or large quantities or charges of carbide or other gas-forming material may be operated upon with equal efficiency, which will keep the charge of materials under operation at the proper low temperature at all times, and which will enable the carrying off of the gas in a steady and uniformly-maintained supply.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of our improvement are designated by the same numerals of reference in each of the views, and in which—

Figure 1 is a vertical sectional view of one form of our improved apparatus. Fig. 2 is a corresponding view illustrating a modified construction, and Fig. 3 a vertical sectional view showing a single-compartment generator constructed according to our invention.

It is well known that in the production of acetylene gas much difficulty is experienced in keeping the charge of carbide sufficiently cool when under operation and also in securing a steady or uniform supply or flow of the gas. Our invention is particularly designed to effectively overcome these difficulties; and to these ends it consists in an apparatus constructed substantially as follows:

The receptacle or charge-container is preferably of a circular form and is made of one or more sections or compartments having their depth proportioned according to the charge of carbide required. Each section or compartment is isolated from the others by a

suitable joint at the outer edge or rim. Each of these joints is gas and water tight; and to accomplish this we preferably form a channel in one part of the section or compartment, which channel is adapted to contain an elastic ring or packing, and the next adjoining section or compartment is adapted to tightly seat against this elastic packing, which produces a very effective joint. Each section or compartment has a tube or channel constructed integrally therewith or attached to it or communicating with it, which tube is adapted to convey water to the carbide or material to be operated upon and which also serves as an outlet for the generated gas. When all the sections or compartments are fitted together in relative position, the upper ends of these tubes of the respective compartments terminate at different levels or heights. The topmost section or compartment is provided with a cover connected by a gas-tight joint like that above mentioned, and the top portion of this cover is formed by a raised hood into which, when the sections or compartments are superposed in their proper order and relative position, the upper ends of the communicating tubes or channels gather.

In the drawings forming part of this specification, 1 designates the sections or compartments, 2 the cover, and 3 the hood, which is carried by the cover. Gas and water tight joints between the several separate sections or compartments 1 and between the cover and topmost compartments are preferably formed by means of an annular groove or channel 4, formed at the bottom of the respective members 1 and 2, and in which groove is set a gasket or packing 5, of rubber or other elastic or adapted material, against which abuts the annular top edge of the next section or compartment when the members are assembled in regular order and superposed position, as shown in the drawings.

In the construction illustrated in Fig. 1 we have shown an apparatus which is made up of four sections or compartments 1, and in this form the tubes or channels 6, which lead from the respective compartments into the hood 3, pass vertically one within the other, as shown, they being of such relative diameter that they will readily be received one



within the other and at the same time leave a sufficient passage-space. In this construction the tube which communicates with the lowermost compartment is carried by the next  
 5 upper compartment, while the tube which communicates with said next upper compartment is carried by the next upper compartment and is of a sufficiently-increased diameter to receive said first tube, and so on to  
 10 the top of the apparatus. When all the sections or compartments are fitted together, the upper terminal ends of these tubes are on different levels or heights, and in the construction shown in Fig. 1 the central tube (which  
 15 is that communicating with the lowermost compartment) has its top end at the highest point, while the tube of the next compartment above the lowermost compartment terminates at a somewhat-lower point, and so on  
 20 with respect to the whole set of tubes. The hood 3 is provided with perforations or apertures 7, through which water may be conveyed to the various compartments—first to the uppermost and thence successively to  
 25 those beneath. The cover 2 is secured in position and the sections 1 are bound relatively together by means of suitable devices, so that all the joints are bound tightly together, and the various members of the complete apparatus  
 30 are connected to form in its entirety a complete generator. This securing means may consist of a rod 8, as shown in the construction illustrated in Fig. 1, which rod is secured by screw-threads 9 or in any other  
 35 suitable manner to the bottom of the lowermost compartment 1 and projects vertically through the central tube 6 and through the top of the hood 3, its upper end being threaded, as at 10, and provided with an adjusting  
 40 thumb-nut 11, by which it may be tightened in position.

In the modification illustrated in Fig. 2 we provide a tubular central rod or pipe 12 in lieu of the rod 8, this tubular rod being correspondingly connected by threads 9 at its  
 45 bottom and projecting at its top end through the hood 3 and provided with threads 10, upon which works a thumb-nut 11. This tubular rod 12 is adapted to convey water to the  
 50 upper ends of the tubes 6, which project within the hood 3, and from thence to the respective compartments 1, the tube being provided with an orifice, as at 13, for this purpose. In this construction the top ends of the tube 6 are also  
 55 on different levels; but the position is preferably reversed with respect to that shown in Fig. 1, the tubes as shown in Fig. 2 having the topmost one at the highest level and the tube connected with the lowermost compartment at the lowest level.  
 60

In Fig. 3 we have shown a very simple form of our improved apparatus, which consists of a single section or compartment 1, carrying a cover 2, with its hood 3, and secured by the  
 65 screw-bolt 8, carrying the tightening-nut 11.

The operation and advantages of our in-

vention will be readily understood by those skilled in the art to which it appertains.

In charging the apparatus a suitable quantity of carbid or gas-forming material is  
 70 placed in each section or compartment 1, and the latter are then connected and secured in their proper superposed position, as shown in the drawings, and the thumb-nut 11 is screwed  
 75 up tightly to connect all of the members of the apparatus firmly together. The apparatus is now immersed in water of a suitable generating system, whereby water enters at  
 80 the orifices 7 in the hood 3 and into the tubes 6 and is conducted by the latter into the respective sections or compartments 1; but, as will be readily understood, by reason of the  
 85 variation in the height of the different feeding-tubes 6 the compartments are fed successively, beginning with the uppermost, which overflows into the tube 6 of the next  
 90 lower, and so on, and the successive action of the compartments is thus accomplished. When the apparatus is submerged in position for operation, the water-level is preferably at  
 95 the point indicated by the line *w* in the drawings with relation to the tubes 6. It will be understood that in the construction shown in Fig. 2 the water will enter through the central tubular connection 12 and pass, in the  
 100 operation of feeding the tubes 6, through the orifice 13, first flooding the lowermost compartment, from which it overflows into the next higher compartment, and so on.

Having fully described our invention, we  
 100 claim as new and desire to secure by Letters Patent—

1. A carbid-container or charge-holder for materials used in the generation of acetylene or similarly-obtained gases, comprising one  
 105 or more sections connected together with water and gas tight joints and respectively provided with tubes or channels the top ends of which terminate at different heights or levels,  
 110 a cover carrying a hood provided with apertures and receiving the terminal ends of said tubes or channels, and means for securing the several members together, in relative position, substantially as and for the purpose  
 115 set forth.

2. An improved apparatus of the class described, comprising sections or compartments connected by water and gas tight joints and respectively having upright projecting tubes or channels the top terminal ends of which  
 120 are at different heights or levels, said sections or compartments being superposed and the tubes thereof projecting one within the other, substantially as and for the purpose  
 125 set forth.

3. An improved apparatus of the class described, comprising a series of superposed sections or compartments respectively having tubes projecting upwardly therefrom and terminating at their top ends at different heights  
 130 or levels, and a cover embodying an upwardly-projecting hood receiving the termi-



nal ends of said tubes or channels and having apertures, substantially as and for the purpose set forth.

4. An improved apparatus of the class described, comprising a series of superposed sections or compartments connected by water and gas tight joints and respectively provided with tubes or channels projecting upwardly and having their top ends terminating at different heights or levels, said tubes projecting one within the other, a cover receiving the top ends of said tubes, and a rod or tube projecting vertically and centrally through the apparatus, and provided with means for clamping the several superposed members, substantially as and for the purpose set forth.

5. A carbide-container or charge-holder for materials used in the generation of acetylene or similarly-obtained gases, comprising a re-

ceptacle or charge-container adapted to be immersed in the water of a suitable generating system and having inlet-apertures in its top portion, said receptacle being made up of a set of superposed sections or compartments respectively having concentric channels or tubes, the top ends of which terminate at different heights or levels, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 11th day of September, 1899.

HENRY RALPH BEAN.

HENRY ROBERT RINGWOOD.

Witnesses:

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