

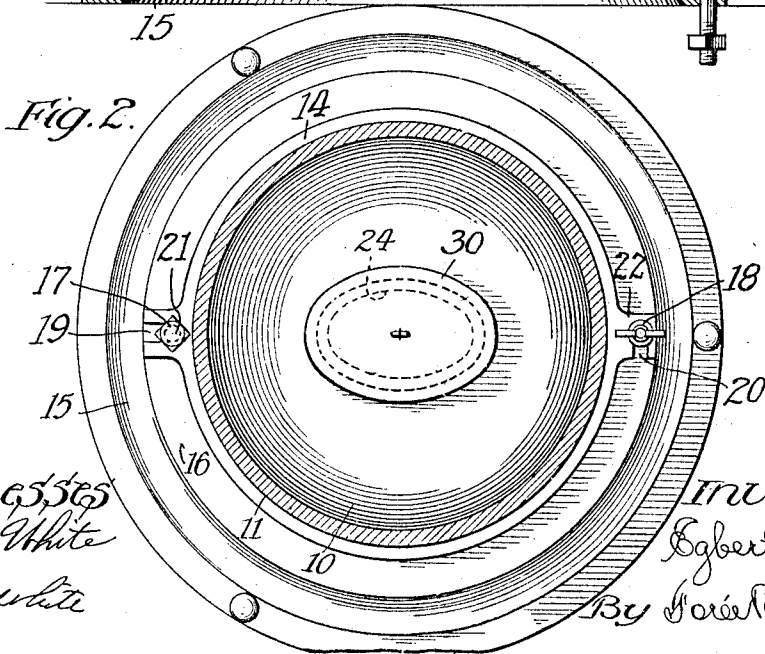
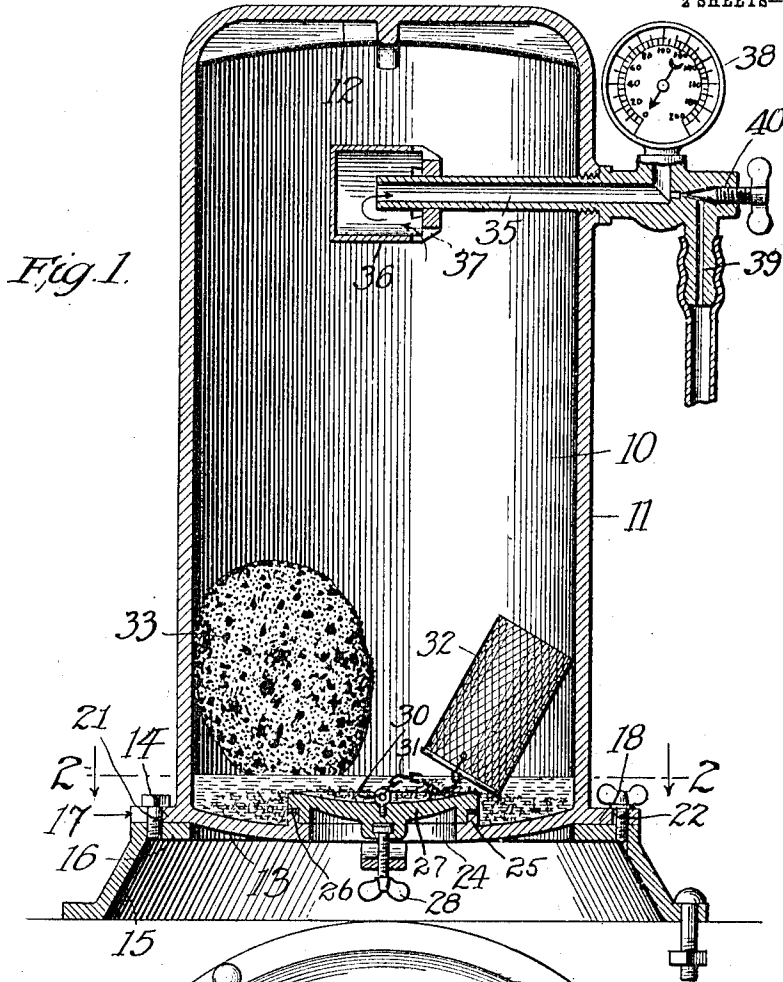
E. R. DULL.
GAS GENERATOR.

APPLICATION FILED FEB. 15, 1909.

947,572.

Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.



Witnesses
R. A. White
H. R. White

Inventor
Egbert R. Dull
By *Forrest Bain* Attorney

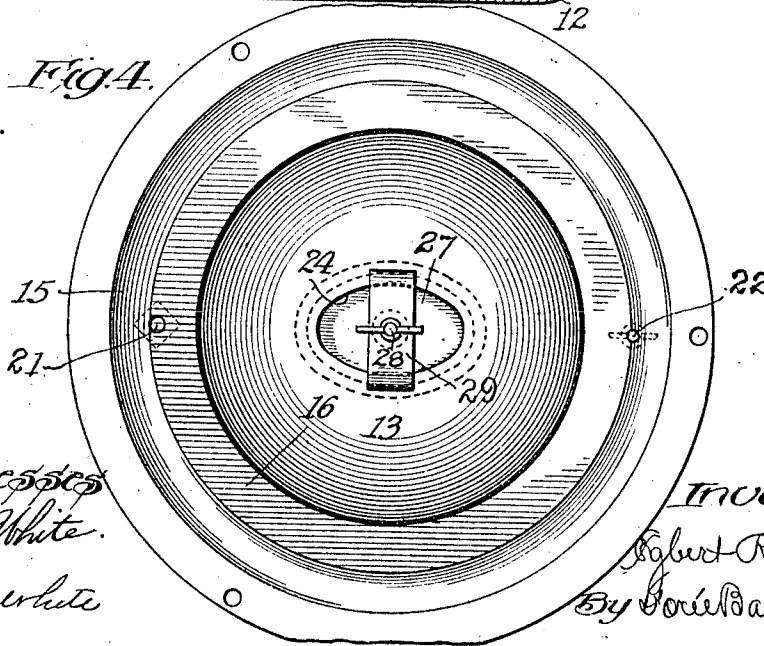
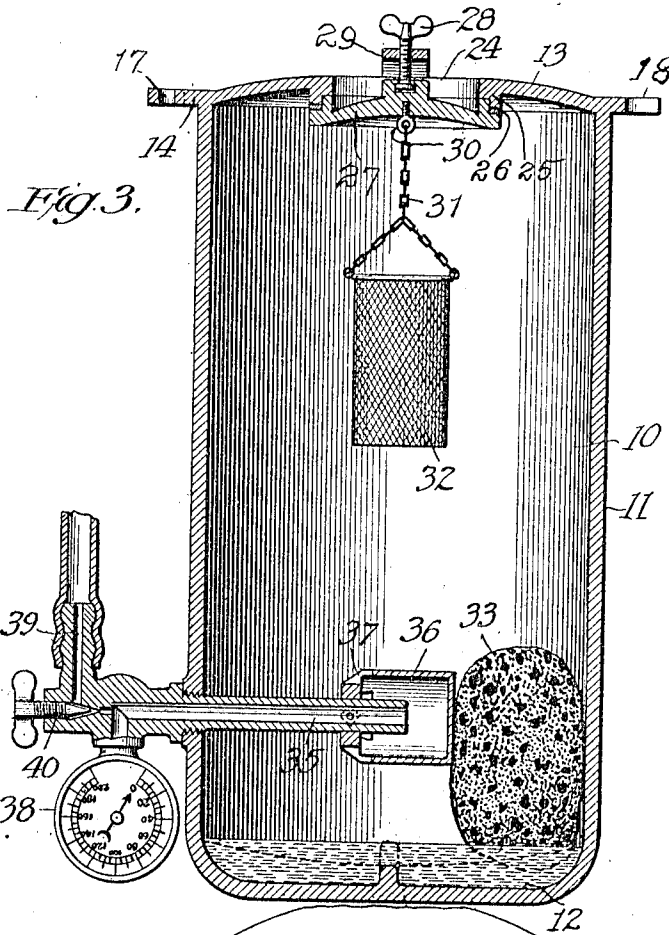
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UNITED STATES PATENT OFFICE.

EGBERT R. DULL, OF CHICAGO, ILLINOIS.

GAS-GENERATOR.

947,572.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed February 15, 1909. Serial No. 477,840.

To all whom it may concern:

Be it known that I, EGBERT R. DULL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Generators, of which the following is a specification.

My invention relates to improvements in gas generators, and has particular reference to portable gas generators for producing acetylene gas for lighting automobile lamps and the like.

Among the objects of my invention are to provide a generator of simple construction, especially adapted for high pressure service, which may be filled or prepared for generation, under conditions precluding the generation of any material amount of gas while the tank is open for filling; which is protected against overcharging by the provision of a carbid receptacle of proper predetermined dimensions; which when in filling position maintains the carbid positively separate from the water, and when in generating position delivers the carbid body to moisture receiving position; which when in generating position has its filling aperture adequately protected against gas leakage even under very high pressure; which provides for the retardation, to an extent, of the water supply to the carbid charge, to prevent unduly violent gas generation; which provides guarding means against the delivery of water into the gas piping during the charging operation; and which provides advantageous facilities for securing the generator in position on the vehicle when generating, arranged to permit its ready detachment for reversal to filling position.

Other and further objects of my invention will become apparent to those skilled in the art from the following description, taken in conjunction with the accompanying drawings, in which;

Figure 1 is a central, vertical section of my improved generator in generating position; Fig. 2 is a horizontal section on line 2—2 of Fig. 1; Fig. 3 is a sectional view similar to Fig. 1, but showing the generator in reversed or filling position; and, Fig. 4 is a bottom plan view of the tank.

In the embodiment of my invention, illustrated in the drawings, I provide in general a tank or gas chamber, having a suitably protected gas outlet therefrom, valved or controlled in any desired manner, said tank

being normally mounted in generating position upon a suitable base, and adapted to be turned, or reversed, to filling position.

Referring to the parts of the generator with reference to their normal position, as shown in Fig. 1, the bottom of the tank is provided with a suitable filling aperture or hand hole, having an interior seating surface for a closure or valve, said closure preferably carrying clamping means for fastening it in position on the bottom readily operable from the exterior of the tank, and said closure preferably having connected therewith, as by a chain, a carbid basket of predetermined capacity, having its open mouth at the end toward the closure or valve.

In the particular construction shown, 10 is the tank or receptacle, whereof 11 is the cylindrical side wall, 12 a top centrally flattened, and 13 a bottom having a laterally extending flange 14, which may rest upon a base member 15 which provides in addition to a peripheral rim and bottom bearing surface, an inturned top flange 16. The tank rim 14 has projecting therefrom lugs 17 and 18, the one provided with a radial notch 19 and the other with a tangential notch 20, respectively for engagement with the fixed headed stud 21 at one side of the base 15, and a thumb screw 22 at the opposite side, so the tank may readily be detachably secured upon the base.

In the bottom 13 of the tank is made an aperture or hand hole 24 preferably of oval or oblong shape, provided with a suitable valve seat 25 surrounding its perimeter on the inner surface of the tank, to receive in coaction therewith the gasket 26 of a cover or closure 27, which has swiveled thereto a thumb screw 28 bearing a clamp bar or brace 29 for spanning the aperture outside of the tank, so that the screw, cover and brace constitute a clamp which, when positioned as shown in Fig. 1, securely tightens the cover in position to close the aperture. Thus, in its broad aspect, the tank is provided with a filling opening, normally in its bottom, closable by a suitable cover, said tank being suitably supported in normal position and readily reversible to bring the filling opening upward. The hand-hole cover is also provided with a ring 30 on its inner surface, having connected therewith a chain 31 having its inner or free end divided to receive and carry in pivotal swinging connection therewith a carbid basket 32, which may be

foraminous or solid, as desired. The basket 32 should be of a capacity predetermined with proper reference to the gas capacity of the tank, so that it will hold a single charge only of carbid. Broadly stated, the carbid receptacle retains carbid when the tank is in filling position and may deliver it when the tank is in normal or generating position.

33 indicates a moisture receptive medium, such as a sponge, loosely placed in the tank, for purposes to be described.

Near the normal top of the tank, preferably through its side wall, passes a gas delivery tube 35, preferably guarded at its inner end against the entrance of water there to as by a cap 36, surrounding and overlying the end of the tube and spaced apart therefrom by an open spider 37 which may be integral with the cap if desired. At the exterior of the tank the tube 35 opens into communication preferably with a pressure gage 38, and has connection with the gas delivery tube 39 in suitable fashion. I have found in practice that for many purposes a simple needle valve 40 may be provided for controlling the communication between the gas passages 35 and 39, in lieu of the more expensive pressure-reducing valve.

While I have herein described in some detail a specific construction of my invention, it will be understood by those skilled in the art from the foregoing description and the following statement of operation, that numerous changes might be made in the particular construction without departure from the spirit and scope of the invention.

In the operation of the particular device described to initially charge the tank, the same is removed from its support 15 and turned to inverted or filling position, as shown in Fig. 3 of the drawings. The clamp is then loosened to free the hand-hole cover and the cover with its attached carbid basket is removed from the device through the hand-hole. Water in a suitable quantity for the carbid is poured into the tank, the protecting cap 36 for the tube 35 preventing water from entering the gas outlet. Of course, more or less of the water will accumulate at the top of the tank, as illustrated in Fig. 3, and the sponge 33, if employed, will become saturated. Now the carbid basket is filled with its charge of carbid and with the cover is lowered into the interior of the tank through the hand-hole and the cover is then secured in position in the ordinary manner, as tightly as is possible. Now the tank is turned back to normal, or generating, position, as indicated in Fig. 1, causing the water to flow down to the bottom of the tank, and the sponge to drop to approximately the bottom of the tank, and causing the carbid basket, suspended only by the chain, to drop into dumping position, as indicated in

Fig. 1, so that it dumps more or less of its contents into the water body therebelow. Immediately gas generation takes place, but the total generation is retarded to some extent by partial absorption of water by the sponge. I have found in practice that the presence of the sponge, while it does not seem to prevent complete hydration of the carbid, seems to make less violent the generation of the gas than when it is not used, and to prevent the generation of so much heat as accompanies the use of the device without the presence of such sponge. These effects I ascribe to the sponge slowly giving up its moisture to the air, which in turn gives it up to the carbid. However, I have found that the device is entirely practical without the presence of the water-absorbing agent and it may be so used to good advantage, although I prefer to use a water-absorbent element in the structure.

It will be observed that the presence of the charging opening in that part of the tank which is at the bottom in generating position, enables a seal to be maintained over the cover for the opening by the pasty mixture or residuum of the carbid, and I have found in practice that such residuum of the admixed carbid and water so effectually seals the closure that I am able to use it with an ordinary gasket packing, and without any extraordinary particularity in the fitting of the parts. By this means I utilize the physical characteristics of the otherwise useless residuum to assist in sealing the tank against gas leakage.

Obviously the gas generated may pass up through the spider 37 and out through the tubes 35 and 38 under the control of the needle valve 40 or other appropriate valve provided, its pressure being registered in the gage 38.

It will be apparent that the base or supporting device 15, may be permanently secured in position on the vehicle, and enables the generator to be easily positioned in generating position, with its clamping devices 28, 29 contained within the base and yet in such manner that the tank may readily be detached for refilling.

Having described my invention, what I claim is:

1. In a generator, the combination of a reversible tank, a foraminous open end carbid receptacle, and a flexible suspension means connecting said receptacle with a point near the normal bottom of the tank, to suspend the receptacle in carbid-retaining position when the tank is reversed from normal position, and permit the receptacle to turn to dumping position when the tank is in normal position.

2. In an acetylene gas generator, a reversible gas tank having a filling opening, an

inwardly opening closure therefor, wherein a moist carbid body is normally resident in position to cover the joint of the closure and tank, thereby to act as a sealing agent for said joint to prevent gas leakage, during and after the completion of the generating process, and regardless of the position of the reversible tank.

3. In a generator, a reversible tank, having a filling aperture in its normal bottom, a closure for said aperture, a carbid receptacle, and flexible suspension means connecting the receptacle with the closure to suspend the receptacle in carbid-retaining position when the tank is reversed from normal position, and to permit the receptacle to fall to the bottom and to dump its contents upon the apertured bottom when the tank is turned into normal position.

4. In a generator, a base, a tank having an opening at one end, attaching means on the open end of the tank for securing same

in inverted position to the base, a removable interior closure for said opening, an exterior means for holding said closure in position to close the opening, and a carbid receptacle secured to said closure.

5. In a generator, a tank having a filling opening at one end, a removable interior closure therefor, fastening means on said end to support the tank in inverted position, an exterior means for securing the closure in position in the tank, a carbid receptacle connected with said closure and proportioned in size to receive and hold only an amount of carbid incapable of generating gas in excess of the strength and capacity of the tank.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

EGBERT R. DULL.

In the presence of—

MARY F. ALLEN,
GEO. T. MAY, JR.