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P. C. AVERY.
GAS TANK.
APPLICATION FILED OCT. 17, 1904.



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UNITED STATES PATENT OFFICE.

PERCY C. AVERY, OF DAYTON, OHIO.

GAS-TANK.

No. 816,059.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed October 17, 1904. Serial No. 228,810.

To all whom it may concern:

Be it known that I, PERCY C. AVERY, a citizen of the United States, residing at Dayton, Montgomery county, Ohio, have invented certain new and useful Improvements in Apparatus for Storing and Delivering Gas, of which the following is a specification.

The present invention relates to a tank, and more particularly to a portable tank which is adapted to be placed upon an automobile or other vehicle and to be stored or charged with acetylene or other gas. I am of course aware that it is not new, broadly considered, to store acetylene under pressure in a tank containing a solvent of acetylene and draw off the acetylene as it is needed for use.

The object of the present invention is to provide improved means for storing acetylene, regard being had more especially to facility in replenishing the body of absorbent material with which the tank is filled and which is saturated with a solvent of acetylene. To this end I use a body of absorbent material, such as asbestos, cotton, wool, or any other fibrous material that may be found to be suitable for the purpose, and I form this absorbent material in the shape of a wick, rope, plat, or other strand, so that it may be introduced into the tank or removed therefrom through a comparatively small opening with but little or no trouble.

It is well known that a body of fibrous material when saturated with a liquid solvent of a gas will absorb the gas to the extent of saturation and that when the gas is introduced under pressure the solvent will become supersaturated, so that upon a reduction of the pressure the gas will be liberated. Among the liquids that have the property of absorbing acetylene may be mentioned methyl or wood-alcohol and acetic acid. A tank filled with fibrous material saturated with either of these liquids will, under atmospheric pressure, absorb acetylene to the extent of saturation and will when the acetylene is introduced under pressure absorb it to the extent of supersaturation.

The present invention is concerned solely with the form in which the body of absorbent material is arranged, (in an apparatus for storing and delivering gas,) to the end that it may be replenished with the utmost facility, and to this end I arrange it in the form of a strand, as already described, and preferably connect one end of this strand with the valve or valve-casing or other device which forms the clo-

sure of the opening through which the strand is introduced and removed.

In the practical carrying out of the invention I use a steel tank which has a comparatively small opening, into which is screwed a valve-casing, which closes the opening, and this valve-casing carries a perforated tube, which projects into the tank and into the body of absorbent material, and to this perforated tube one end of the strand of absorbent material is secured by any suitable means.

The advantage in the use of a perforated tube extending well into the body of supersaturated absorbent material is that it affords a freer escape for the gas than would be afforded by a simple outlet-opening of small area at one wall of the inclosure. I desire to have it understood, however, that, while this is the preferred embodiment of the invention, still the invention is not limited to the securing of the end of the strand to the valve device. On the contrary, the invention comprises any arrangement in which the absorbent material is in the form of a strand which is adapted to be inserted and removed through a comparatively small opening in the tank, said opening being provided with a suitable closure, to which the end of the strand is attached.

In the accompanying drawing, which is made a part of this specification, the figure is a section of a tank for the storage of gas, embodying the invention in its preferred form:

A represents the walls of the tank, which may be of any desired construction. Preferably the tank is of steel, and one of its heads, B, is countersunk for the purpose of accommodating a pressure-gage C for indicating the quantity of gas in the tank. The tank is filled with a body D of absorbent material, such as already mentioned, and this body of absorbent material is arranged in the form of a wick, rope, plat, or other strand, so that it may be introduced through the opening E of the valve device F.

The present invention is not concerned with the details in the construction of this valve device. Suffice it to say that it has a threaded portion, which occupies the threaded opening E, and preferably, although not necessarily, it has a perforated tubular extension G, which extends well into the body of absorbent material and to which one end of the strand D is connected, so that when the valve device is removed the end of the strand is at the same time drawn out through the

opening E. Being thus made accessible, the entire strand may be quickly drawn out of the tank and through the same opening a fresh strand may be inserted. I prefer to attach the end of the strand to the valve device, as above described; but it is manifest that this is not essential and that the purpose and object of the invention will be accomplished if the end of the strand is accessible through any suitably-disposed opening in the tank—as, for example, it may be accessible through the opening into which the hollow stem of the gage C is screwed.

The gage is arranged with its cylindrical body parallel with the sides of the tank, or, in other words, with its dial perpendicular to the sides and parallel with the end of the tank. Unlike gages of customary construction, the tube for conveying to it the pressure to be indicated enters through its back instead of through its side.

What I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus for storing and delivering gas having in combination a tank, a body of fibrous material filling the tank, a solvent of the gas to be stored with which the fibrous material is saturated, said solvent being supersaturated with the stored gas, the tank being provided with a comparatively small opening, and a removable closure for said opening, the fibrous material aforesaid being arranged in the form of a strand, substantially as described.

2. An apparatus for storing and delivering gas having in combination a tank, a body of fibrous material filling the tank, a solvent of the gas to be stored with which the fibrous material is saturated, said solvent being supersaturated with the stored gas, the tank being provided with a comparatively small opening, and a closure for said opening, the

fibrous material aforesaid being arranged in the form of a strand, one end of which is attached to said closure, substantially as described.

3. In an apparatus for storing and delivering gas, the combination of a tank having a comparatively small opening, a valve device having a threaded portion occupying said opening, a body of fibrous material filling the tank, said fibrous material being arranged in the form of a strand and having one end attached to the valve device and a solvent of the gas to be stored, with which solvent the fibrous material is saturated, said solvent being supersaturated with the stored gas, substantially as described.

4. In an apparatus for storing and delivering gas the combination of a tank having an opening, an absorbent body filling the tank, a solvent of the gas to be stored with which the absorbent body is saturated, said solvent being supersaturated with the stored gas, a valve device closing said opening, and a perforated tube extending from the valve device into the absorbent body, substantially as described.

5. An apparatus for storing and delivering gas having in combination a tank, having through one of its end walls a comparatively small opening, a removable closure for said opening, a body of fibrous material filling the tank, a solvent of the gas to be stored with which the fibrous material is saturated, said solvent being supersaturated with the stored gas, and the fibrous material being arranged in the form of a strand, substantially as described.

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