UNITED STATES PATENT OFFICE.

EDMOND FOUCHÉ, OF PARIS, FRANCE.

PROCESS OF STORING EXPLOSIVE GASES.

SPECIFICATION forming part of Letters Patent No. 661,401, dated November 6, 1900.

Application filed September 8, 1897. Serial No. 650,978. (No specimens.)

To all whom it may concern:

Be it known that I, EDMOND FOUCHÉ, general manager of the Compagnie Française de l'Acétylène Distons, a citizen of France, residing at Paris, France, have invented certain new and useful Improvements in the Storage of Explosive Gases, of which the following is a specification.

The invention relates to an improved process for storing explosive gases.

It is the object of my invention to provide for storing the gas in a suitable receiver in such manner that in the event of an explosion the whole body of the gas stored shall not be affected, but only a very small volume or amount, whereby the receiver may not be ruptured.

It is a further object of my invention to provide for the more efficient dissolving of a gas in a liquid or of reduction of the gas to a liquid by compression in storing the gas.

To this end my invention resides in completely filling the receiver which is to contain the gas with a porous substance provided with numerous separate small bores or perforations. It is desirable that the filling substance employed be an integral porous mass; but I may employ a number of blocks of the porous material and completely fill the receiver with the same. In either case the porous material is provided with a number of small bores, passages, or perforations preferably about one millimeter in diameter. These bores, passages, or perforations are each separate and distinct from the other and constitute, as it were, a series of isolated cells for the gas. I do not wish to confine myself to the use of any particular substance for filling the receiver. I may mention, however, among other materials, asbestos, mineral wool, carbon, pumice-stone, and ceramic materials as capable of being used for my purpose. A suitable tank or receiver having been entirely filled with the porous substance, which may be a continuous mass of material or in the form of blocks or bricks, and in either case provided with numerous small bores or perforations, said tank in one operation is charged directly with the gas to be stored. The gas will readily pass into the perforations or passages in the filling substance. When the requisite amount of gas has been compressed into the receiver, the latter is hermetically closed. The body of the filling substance, if pulverized, would occupy about twenty per cent. to twenty-five per cent. of the space it formerly occupied. The aggregate amount of free or open space therefore afforded by the perforations and pores in said substance is about seventy-five per cent. to eighty per cent., and consequently about this per cent. of the entire capacity of the tank will be occupied by the gas compressed therein. It will be apparent, therefore, that tanks provided with my improved filling substance are capable of holding a considerable quantity of gas and that in the event of an explosion the same will be confined to the inconsiderable amount of gas contained in one of said bores or cells and cannot be communicated to the entire body of stored gas. The explosion, therefore, would be confined to a particular part of the tank, and under the conditions prevailing, as only an inconsiderable amount of the gas stored could explode, no danger by reason of excess of pressure would accrue to the tank. By providing the porous substance as near solid or continuous as possible I provide against the explosion spreading through the interstices between pieces of filling material.

When it is desirable that the gas be charged in the tank under sufficient pressure to reduce it to liquid form, it will be apparent that the said passages or perforation will facilitate the circulation of the fluid and its reception by the porous mass as soon as formed.

When the gas is to be dissolved in a liquid, the liquid is poured into the tank until the porous substance employed has received all that it is capable of holding, any surplus liquid being removed. The gas is now charged into the receiver. It will be apparent that the perforations in the filling substance will permit the gas to circulate readily through the porous material and to contact in a comparatively short time with a very large surface of liquid-impregnated material. By this means the dissolution of the gas in the liquid is greatly facilitated.

My process can be applied to the storage of any explosive gas in any kind of receiver, the gases being in compressed condition, reduced to a liquid, or dissolved in a suitable liquid.

My process is specially applicable to storing acetylene gas in any of the three conditions referred to. My process can also be used with great advantage to prevent the possibility of any considerable explosion in various applications, as will be understood.

Having thus fully described my invention and in what manner the same is to be carried out, what I claim is—

1. The process herein described for storing an explosive gas, which consists in filling the receiver with a porous substance provided with numerous separate small bores or perforations, filling the pores and perforations of said substance with a suitable liquid, and then compressing the gas into the said receiver whereby it will be absorbed by the liquid and be stored in isolated quantities in said substance.

2. The process herein described for storing an explosive gas, which consists in filling the receiver with a porous substance provided with numerous separate bores or perforations, charging the receiver with the gas, and compressing said gas into liquid form, whereby it will be stored in isolated quantities in the said substance.

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

EDMOND FOUCHÉ.

Witnesses:

EDWARD P. MACLEAN,

ALFRED HIER.