No. 608,349. Patented Aug. 2, 1898.

E. STERNÉ.

CAPSULE OR CONTAINER FOR CONTAINING COMPRESSED OR LIQUEFIED GASES.

(Application filed Mar. 31, 1898.)

(No Model.)

Fig. 1.

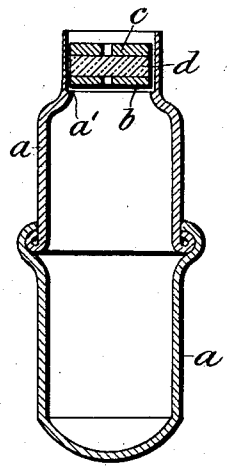


Fig. 2.

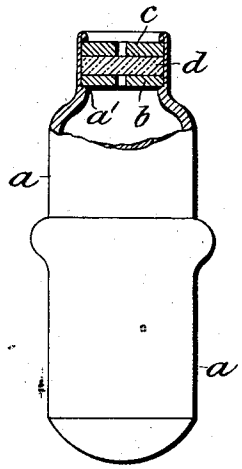


Fig. 3.

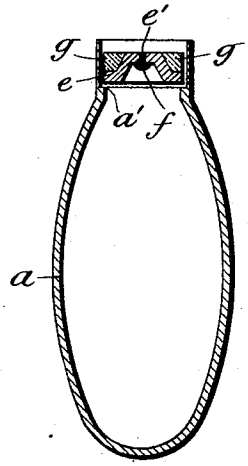


Fig. 4.

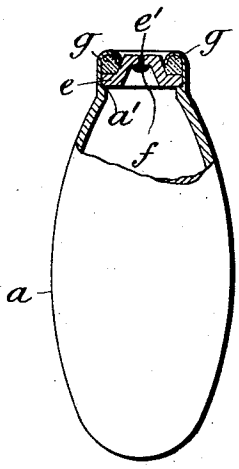


Fig. 5.

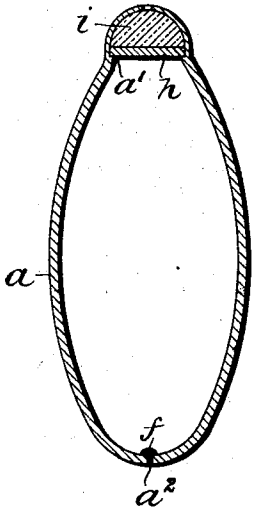


Fig. 6.

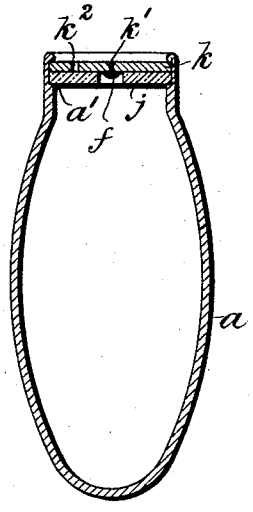
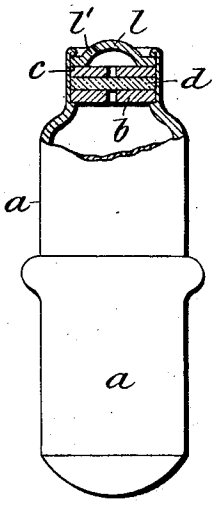


Fig. 7.



Witnesses.
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Inventor.
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by Wm. F. Finnell
his Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EMILE STERNÉ, OF PARIS, FRANCE.

CAPSULE OR CONTAINER FOR CONTAINING COMPRESSED OR LIQUEFIED GASES.

SPECIFICATION forming part of Letters Patent No. 608,349, dated August 2, 1898.

Application filed March 31, 1898. Serial No. 675,959. (No model.)

To all whom it may concern:

Be it known that I, EMILE STERNÉ, a subject of the Emperor of Austria-Hungary, residing at Paris, in the Republic of France, have invented certain new and useful Improvements in Capsules or Containers for Containing Compressed or Liquefied Gases, of which the following is a full, clear, and exact description, and for which I have made application for a patent in Great Britain, No. 15,402, dated June 28, 1897.

Metallic capsules made according to my United States of America Patent No. 528,820, dated November 6, 1894, containing compressed or liquefied gases and used for various purposes have heretofore been discharged at the desired time by means of a pin which perforates the capsule, according to my British Patent No. 3,009 of the year 1896. On the contrary, according to my present invention I construct a capsule or container made in one or two pieces capable of containing compressed or liquefied gases—that is to say, capable of resisting very high pressures and of automatically discharging its contents without the necessity of using any perforating-pin or valves.

It consists in forming in the neck or at a convenient point of the surface of a capsule or container before charging the same with gas a very small hole, which is closed by means of gum, resin, sugar, gelatin, or other body susceptible of being dissolved, transformed, or softened by contact with the medium in which the capsule or container is placed, from which it results that at the end of a longer or shorter time, according to local circumstances and to the physical condition of the medium, the said hole will be freed in consequence of the destruction of the closing mass, and the contents of the capsule will be thereby automatically discharged into the medium in which it is placed. The closing material is placed within the capsule or container over the said aperture when in an adhesive or semifluid or soft condition and is hardened by heat or otherwise before charging the capsule or container with gas, or a compressible, soluble, or decomposable or softening body may be placed within the inlet-aperture of the container or within any perforated closing means thereof. It will be readily understood that on account of the small dimensions of the said hole or opening the pressure exerted on it is comparatively small and that in consequence the closing mass does not require to be of great strength.

In the accompanying drawings I have represented, by way of examples, various methods of carrying my invention into effect.

Figures 1 and 2 are sections of a metallic capsule or container made of two pieces and provided with my improvements, Fig. 1 showing it ready for charging and Fig. 2 showing it charged and closed. This capsule has the form of a cylinder a, having a seat a' in the neck thereof. Within the neck upon the seat a' I place a centrally-perforated loosely-fitting washer b, on which is placed a mass or disk of soluble or decomposable and compressible material d, and on this latter is placed a loosely-fitting centrally-perforated washer c. The capsule-charging aperture may be entirely around these washers or disks, as shown at Fig. 1, or it may be at one side thereof. After charging the capsule the sides of the neck are, as shown at Fig. 2, compressed against the washers or disks $b\,c\,d$ and the upper edge turned over, so as to press the said washers firmly down, and thereby compress the mass or disk d of soluble or decomposable material between the washers $b\,c$.

Figs. 3 and 4 are sectional views of a metallic capsule or container the body a of which is of oval form. The neck is provided with a seat a', as in the previous figures, and within the neck is placed a loosely-fitting cap e, having a hole e' in the center, which hole e' is closed by a soluble or decomposable body f, and around the rising part of said cap is placed a packing-ring g, which also loosely fits the neck. The capsule, Fig. 3, is charged through the space between the neck and the closing device and the neck compressed against the latter and turned over onto the packing-ring g, so as to compress the latter tightly against and around the cap e, as shown at Fig. 4.

Fig. 5 is a section of a capsule or container of oval form and having at its lower end a small hole a^2, closed by a mass of soluble or decomposable material f. The neck has a

seat a', on which is placed a loosely-fitting washer h and packing-piece i. The capsule is charged, as in the above examples, through the space between the neck and the closing means, and the charging-orifice is closed by compressing the material of the neck around and over the packing i, as shown.

Fig. 6 shows a capsule having an oval body a and a seat a' in the neck. On said seat a' is placed a centrally-perforated disk j, of rubber or other suitable material, on which is placed a metal washer k, having a central perforation k' and a perforation k^2 out of the center thereof. The central perforation k' is filled and closed by a mass f of soluble or decomposable material. The edges of the neck are compressed and turned over, thereby securing the disk j and washer k hermetically in position. The capsule is then charged with gas, which passes through the perforation k^2, depresses the disk j, and then passes through the perforation in said disk into the capsule. When the capsule is charged, the internal pressure presses the washer or disk j against the metal washer k, and thereby closes the inlet-orifices, and consequently the capsules.

If for any reason it should be considered advisable to protect the soluble or decomposable body referred to with reference to the examples shown at Figs. 1, 2, 3, 4, and 6, an outer cap l, as shown at Fig. 7, may be used in combination with the closing devices of the charging-apertures, such cap l having a perforation l' out of the center thereof when applied to the examples shown at Figs. 1 to 4, and out of line with the holes k' k^2 in the example shown at Fig. 6.

It will be readily understood that the orifice closed with soluble or decomposable material can be arranged at any desired place on the surface of the capsule.

I would also remark that the various methods herein shown and described of closing the charging-orifices of gas-containing capsules are only given as examples and form no part of my present invention, and that my invention is equally applicable to gas-containing capsules having other forms and arrangements of charging and closing apertures and means.

The applications of these capsules provided according to my invention with an aperture closed with a soluble or decomposable substance are essentially various. I will particularly describe their application to aerating water or other liquid. It suffices in this case to place a capsule of this description charged with gas in a suitable bottle filled with water or other liquid to obtain very rapidly and easily an aerated or gaseous water or other liquid. It will be equally well understood that these same capsules may likewise be put to various uses in agriculture and in the manufacture of chemical and other products and may be used for other purposes.

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

1. A capsule or container for containing compressed or liquefied gases having a small hole in the body or closing means thereof which before charging the same with gas is closed by means of any suitable soluble or decomposable body capable of being dissolved or transformed by contact with the medium in which the capsule or container is placed, thereby automatically discharging the contents thereof, substantially as herein described.

2. A capsule or container for containing compressed or liquefied gases having any suitable soluble or decomposable and compressible body placed within the filling-orifice which after charging is compressed and closes the capsules and which body is capable of being dissolved or transformed by contact with the medium in which the capsule or container is placed thereby automatically discharging the contents thereof substantially as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

EMILE STERNÉ.

Witnesses:
CLAUDE K. MILLS,
H. SEYMOUR-MILLS.