

No. 647,002.

Patented Apr. 10, 1900.

H. KORRODI.

CAPSULE FOR COMPRESSED OR LIQUEFIED GASES.

(Application filed July 11, 1899.)

(No Model.)

Fig. 1.



Fig. 2.



Fig. 3.

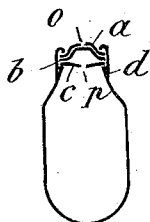
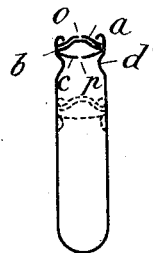


Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

HEINRICH KORRODI, OF BERNE, SWITZERLAND.

## CAPSULE FOR COMPRESSED OR LIQUEFIED GASES.

SPECIFICATION forming part of Letters Patent No. 647,002, dated April 10, 1900.

Application filed July 11, 1899. Serial No. 723,446. (No model.)

*To all whom it may concern:*

Be it known that I, HEINRICH KORRODI, a citizen of Switzerland, residing at Archivstrasse 6, Berne, Switzerland, have invented certain new and useful Improvements in Capsules for Compressed or Liquefied Gases; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The metallic capsules (named "sodor") filled with high-pressed or liquefied gases, such as carbonic acid, and actually found in the trade, require for their use a bottle fitted with a special closing apparatus. By closing the bottle this special apparatus bores a hole into the capsules and the high-pressed or liquefied gas escapes and is absorbed by the liquid contained in the bottle. Not taking into account the expense caused by the purchase of such a bottle, it often occurs that the bottle is not at hand when it could be at best employed. In order to extend as much as possible the use of the practical capsules filled with carbonic acid, it is very necessary to be able to utilize them without being compelled to have a bottle specially constructed for that purpose. It must be possible to utilize these capsules with any bottle that can be corked by any means. (Cork apparatus used for bottles of beer, &c.) This condition can be fulfilled by having the top of the capsule closed up with an outer cover made of hard material having a hole and an inner cover made of soft material plain and easy to be bored.

On the drawing-sheet are represented some capsules fitted with said improvement.

The capsule of Figure 1 has an outer cover *a*, made of hard material—hard capsule metal, for instance—and an inner cover *b*, of soft material—a sheet of tin or of aluminium, for instance. The upper end of the neck of the capsule is bent down and presses both covers against the inner heel *d* of the neck, by which the inner soft cover *b* serves at the same time as stuffing. Thus the use of the unhandy rubber stuffing is avoided. The outer hard cover *a* has in its center a small hole of about one-half millimeter diameter.

The capsule is bored on the cover side by means of a needle fixed in a cap *e*. Said cap is represented in Fig. 2 and consists of a sheet-iron cap in form of a cup. The cap is wide enough to fit on the neck of the capsule. The bottom bears a needle *n* with a fine point—made of steel, for instance—and around the point is a soft rundle *r*, consisting of cork, for instance. By pressing the needle-cap on the neck of the capsule the inner cover *b* is bored through, and at the same time the cork rundle is pressed against the end of the neck and prevents the gas from escaping as long as the pressure on the needle-cap is maintained. The capsule is now thrown into the vessel containing the liquid, (water, &c.,) and the gas by escaping pushes the needle-cap away. In order to prevent too sudden an escape of the gas, it is necessary to bore only a very small hole with the needle *n*. Every box contains some of said needle-caps *e*, which can be used repeatedly.

Figs. 3 and 4 show capsules not requiring needle-caps. Both covers *a* and *b* are similar to those represented in Fig. 1. The cover *b* is followed by a third cover *c*, made of hard material—hard capsule metal, for instance—slightly bulged down and bearing a small hole *p* in the center. The capsule can be opened by means of any sharp tool, (needle, knife, &c.) The dimension of the hole bored into the needle-cover *b* has no effect whatever on the manner in which the gas escapes, while its velocity is limited by the small inner hole *p*. The loss of gas till the capsule is thrown into the bottle or vase and the needle removed from the aperture will only amount to the quantity of gas which could have been contained between the outer and the inner cover.

With the present improvement the covers only are bored, and the capsules can be utilized again. To answer the various requirements, it will be necessary to have at least two sizes of capsules, so that from the larger size the smaller can be manufactured. For that purpose the form given to the capsule as shown in Fig. 4 is a most suitable one. Instead of the heel *d* the neck is simply contracted *d'*. In Fig. 4 the dotted lines show

how an already-utilized capsule of said construction can be transformed in another capsule of smaller size.

5 The form of the capsule to be preferred will be oblong, cylindrical, and able to be introduced into the neck of any kind of ordinary current bottle.

10 Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

15 1. A capsule for compressed or liquefied gases comprising an inner cover and an outer vented cover, in combination with a cap having a perforator mounted on the inside of the end of the cap, said cap adapted to fit on the capsule with its perforator projecting through said aperture in the outer cover and penetrating said inner cover, substantially as set forth.

20 2. A capsule for compressed or liquefied gases comprising an inner soft-metal cover and an outer vented cover in combination with a cap having a perforator mounted on the inside of the end of the cap, said cap adapted to fit on the capsule with the said perforator projecting through said aperture in the outer cover and penetrating said inner cover, substantially as set forth.

30 3. A capsule for compressed or liquefied gases provided with an inner shoulder and a turned-in edge in combination with an inner concavo-convex cover arranged convex side outwardly, and an outer vented concavo-convex cover arranged convex side outwardly, and means for retaining said covers in place, substantially as set forth.

40 4. A capsule for compressed or liquefied gases provided with a shoulder, an inner concavo-convex cover arranged convex side outwardly, an outer vented concavo-convex cover

arranged convex side outwardly, and means for retaining said covers in place, substantially as set forth.

5 5. A capsule for compressed or liquefied gases provided with a shoulder, an inner concavo-convex cover arranged convex side outwardly, an outer vented concavo-convex cover arranged convex side outwardly, in combination with a cap having a perforator mounted on the inside of the end of the cap, said cap adapted to fit on the capsule with the said perforator projecting through the aperture in the outer cover and penetrating said inner cover, substantially as set forth.

60 6. A capsule for compressed or liquefied gases provided with a shoulder, an inner concavo-convex cover of soft metal arranged convex side outwardly, another concavo-convex vented cover arranged convex side outwardly and located over said soft-metal cover, and an apertured disk located below said covers, and means for retaining said covers in place, substantially as set forth.

70 7. A capsule for compressed or liquefied gases provided with a shoulder and having an inner concavo-convex cover of soft metal arranged convex side outwardly, another concavo-convex vented cover arranged convex side outwardly and located over said soft-metal cover, and another concavo-convex vented cover disposed below said covers and having its convex side extending inwardly, and means for retaining said covers in place, substantially as set forth.

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

HEINRICH KORRODI.

Witnesses:

EDUARD VON WALDKIRCH,  
PAUL SCHNEIDER.