

(No Model.)

2 Sheets—Sheet 1.

E. STERNÉ.

APPARATUS FOR CHARGING BOTTLES OR OTHER VESSELS WITH GASES
BY MEANS OF CAPSULES OR CONTAINERS CHARGED WITH LIQUEFIED
OR COMPRESSED GASES.

No. 586,632.

Patented July 20, 1897.

Fig. 3.

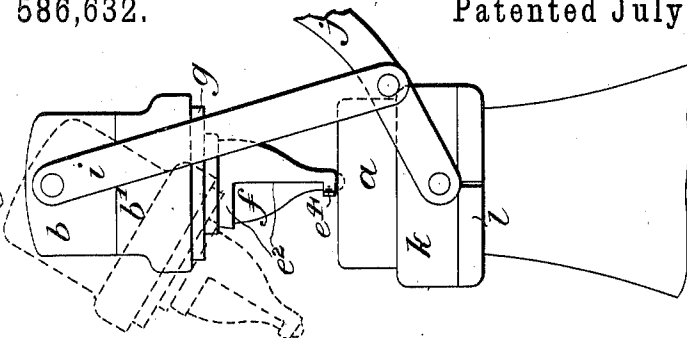


Fig. 2.

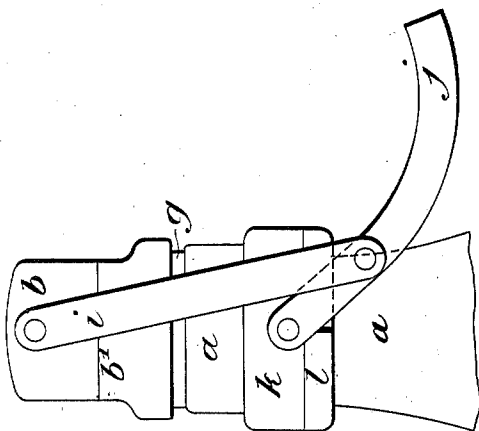


Fig. 1.

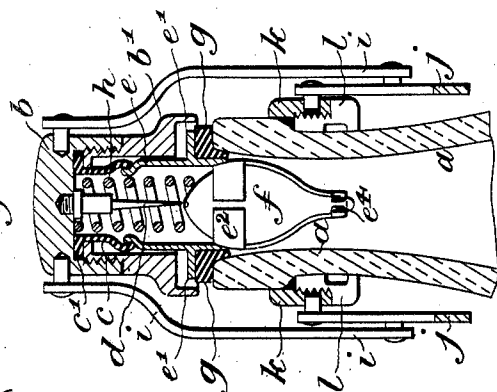


Fig. 6.

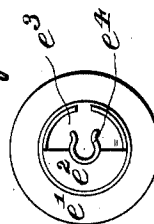


Fig. 5.

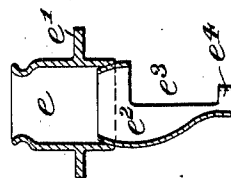
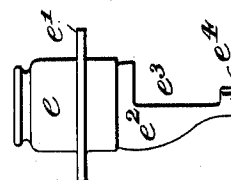


Fig. 4.



Witnessed.
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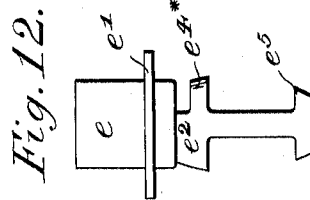
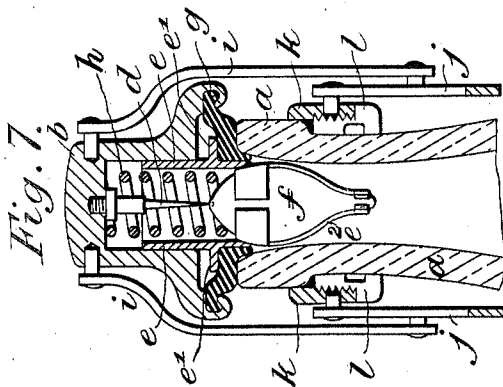
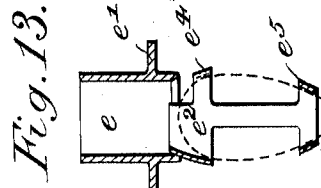
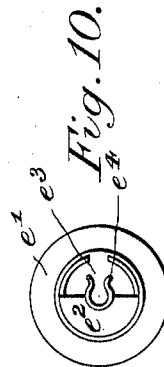
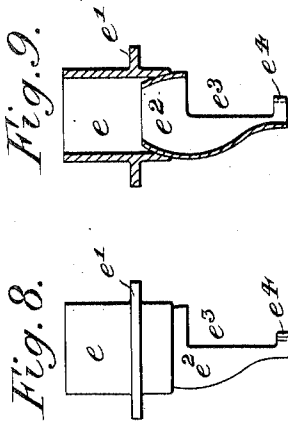
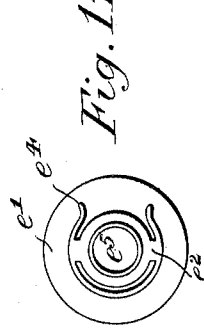
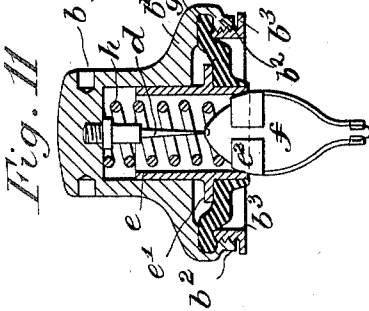
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his Atty.

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APPARATUS FOR CHARGING BOTTLES OR OTHER VESSELS WITH GASES
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Witnesses:
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UNITED STATES PATENT OFFICE.

EMILE STERNÉ, OF PARIS, FRANCE.

APPARATUS FOR CHARGING BOTTLES OR OTHER VESSELS WITH GASES BY MEANS OF CAPSULES OR CONTAINERS CHARGED WITH LIQUEFIED OR COMPRESSED GASES.

SPECIFICATION forming part of Letters Patent No. 586,632, dated July 20, 1897.

Application filed April 5, 1897. Serial No. 630,812. (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 Apparatus for Charging Bottles or other Vessels with Gases by Means of Capsules or Containers Charged with Liquefied or Compressed Gases, of which the following is a full, clear, and exact description.

The invention relates to apparatus consisting of a stopper provided with means for carrying a small capsule or container charged with liquefied or compressed gas and with means for perforating said capsule and thereby liberating the gas in the act of closing the bottle; and it consists of improvements upon an invention for which English Letters Patent were granted to me, dated August 21, 1895, No. 3,009/96, in my former name of Emile Stern.

I will describe my invention by the aid of the accompanying drawings, in which—

Figure 1 is a vertical section of a bottle-neck provided with a stopper and capsule carrier and piercer constructed and arranged according to my present invention. Fig. 2 is an external view of the same. Fig. 3 is another external view showing the parts in different positions. Fig. 4 is an elevation, Fig. 5 is a vertical section, and Fig. 6 an under side view, of the capsule-carrier, separately. Fig. 7 is a vertical section showing a modification. Fig. 8 is an elevation, Fig. 9 a vertical section, and Fig. 10 an under side view, of the capsule-carrier of Fig. 7, separately. Fig. 11 is a section representing a modification in the means for fixing the rubber washer to the cap. Figs. 12 and 13 are elevations, and Fig. 14 is an under side view, of a modified form of capsule-carrier.

According to my invention I construct a stopper with a fixed perforator and a capsule-carrier acted upon by a spring and capable of a convenient motion in relation to the head of the stopper and provided with a connection with the stopper-head and a cushion to make a tight joint with the top of the bottle-neck.

I will first describe the arrangement represented at Figs. 1 to 6.

a is the bottle-neck. The stopper-head is formed of two parts *b b'*, screwed together, and is hollow. The part *b'* has an inwardly-projecting flange, between which and the top of the part *b* the flange *c'* of an india-rubber tube *c* is firmly secured.

d is a perforator fixed centrally in the interior of the part *b* and projecting downward to a convenient distance.

e is a tube provided with a flange *e'*, and *e²* is the capsule-carrier, which is fixed firmly to the lower end of the tube *e* (instead of being pivoted, as heretofore) and within which a capsule *f* can be readily secured for use and withdrawn after use.

Around the lower part of the tube *e* and against the lower face of the flange *e'* is placed a rubber washer *g*, which enters slightly the bottle-neck and when pressed on the top of the latter makes a hermetic joint.

The upper end of the tube *e* is formed with a circumferential groove, within and around which the lower end of the rubber tube *c* is firmly fixed.

h is a spring placed between the part *b* and the capsule-carrier *e²*.

The capsule-carrier *e²* is made of form to receive any desired capsule and is provided with an opening *e³* in one side to permit of the insertion and removal of a capsule and, as shown at Figs. 1 to 10, with a spring-clip *e⁴* at its lower end to clip around the neck of the capsule and retain the latter securely in a vertical central position.

A stopper with capsule carrier and piercer constructed as above described may be attached to a bottle and forced firmly onto the neck of the latter by any suitable means. For instance, that shown in the drawings is the well-known form of toggle-lever arrangement, consisting of a bail *i*, pivoted to the part *b* of the stopper and to the lever *j*, which latter is pivoted to a ring *k*, secured around the bottle-neck by screwing onto a divided screw-threaded ring *l*, as shown.

In using the above construction of stopper, the capsule-carrier is first supplied with a charged capsule, the stopper is then applied to the bottle-neck, and in forcing the same down the action is to form a hermetic joint with the bottle-neck and by the travel of the

part *b* in relation to the tube *e* to force the perforator *d* into the capsule and thereby liberate the gas therein. The rubber tube *c* prevents the passage of gas through the upper part of the stopper. After use and on liberating the stopper the spring *h* forces the capsule-carrier *e*² outward sufficiently far to liberate the perforator *d* from the pierced capsule, when the latter can be readily removed and replaced with a charged capsule.

In the modifications represented at Figs. 7 to 11 I dispense with the rubber tube *c*, and in lieu thereof I connect the outer edge of the rubber washer *g* to the lower edge of the part *b*, either by forcing the same therein, as shown at Fig. 7, or by means of a ring *b*³, screwing into the descending flange *b*² of the part *b*', as shown at Fig. 11, thus preventing the passage of gas to the exterior of the stopper. Otherwise these modifications (represented at Figs. 7 to 11) are constructed and operate similarly to the arrangement shown at Figs. 1 to 6.

If desired, the flange of the ring *b*³ may be dispensed with and other well-known means may be provided for screwing the same into position.

In the modified form of capsule-carrier represented at Figs. 12 to 14 the lower end thereof is provided with a complete ring *e*⁵, while a spring-clip *e*^{4*} is provided at or about the center thereof. In this form of capsule-carrier the neck of the capsule is passed through the ring *e*⁵, and the body thereof is forced past the spring-clip *e*^{4*} and is thus held centrally and firmly within the capsule-carrier.

I would here remark that the form and dimensions of the capsule-carrier will be made to accord with the shape and dimensions of capsule used.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. In apparatus for closing a bottle or other vessel and charging the same with gas, the combination of a hollow stopper-head, a perforator fixed in said head, a capsule-carrier fixed rigidly to a tube fitted within and telescopically movable in relation to such head, means for connecting the capsule-carrier tube hermetically with the head, and a spring placed between the head and the capsule-carrier, substantially as herein set forth and for the purpose stated.

2. In apparatus for closing a bottle or other vessel and charging the same with gas, the combination with a hollow stopper-head, of a fixed perforator within said head, a capsule-carrier fixed rigidly to a tube fitted within and telescopically movable in relation to said head, a spring placed between the capsule-carrier and the head, means for connecting the capsule-carrier tube hermetically with the head, a ring or washer on the capsule-carrier tube to effect hermetic closing of the bottle or other vessel, and means for forcing the stopper on and removing it from the neck of the bottle or other vessel, substantially as herein set forth.

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Witnesses:

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EDWARD P. MACLEAN.