No. 639,412. Patented Dec. 19, 1899.

G. LEJEUNE.

CARBONIC BUNG.

(Application filed Dec. 29, 1897.)

(No Model.)

Fig. 1

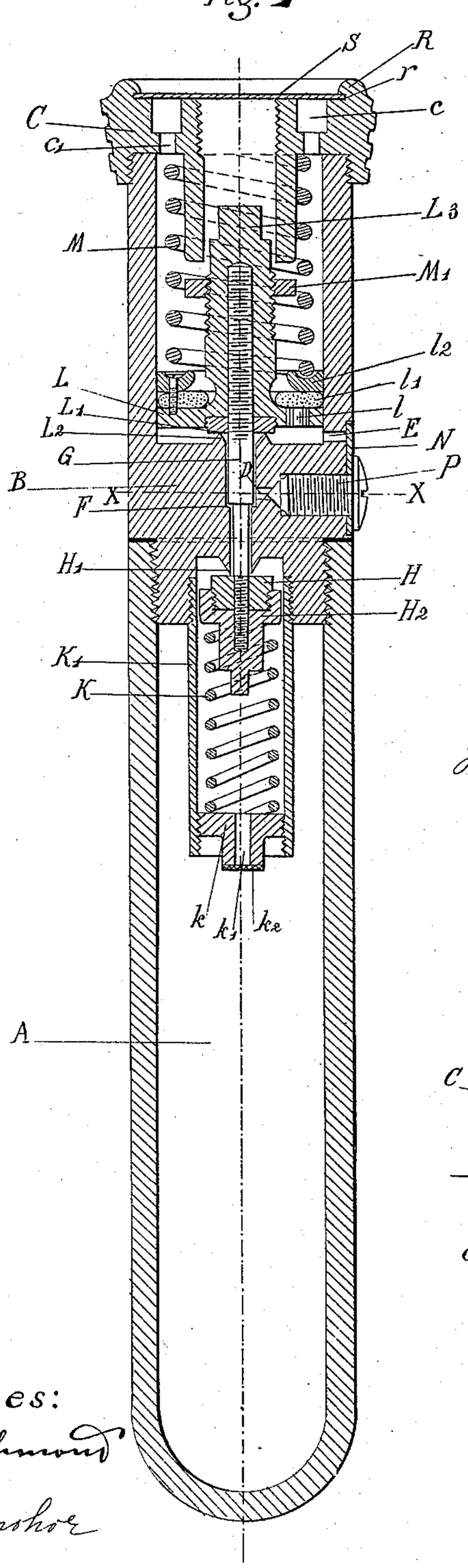


Fig. 4

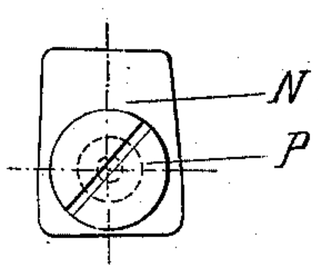


Fig. 3

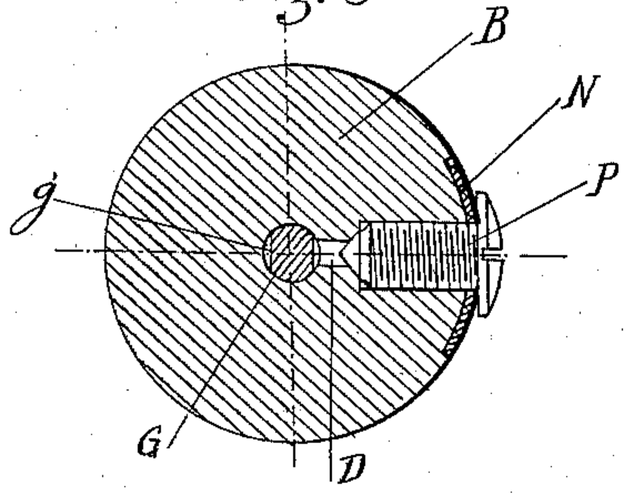
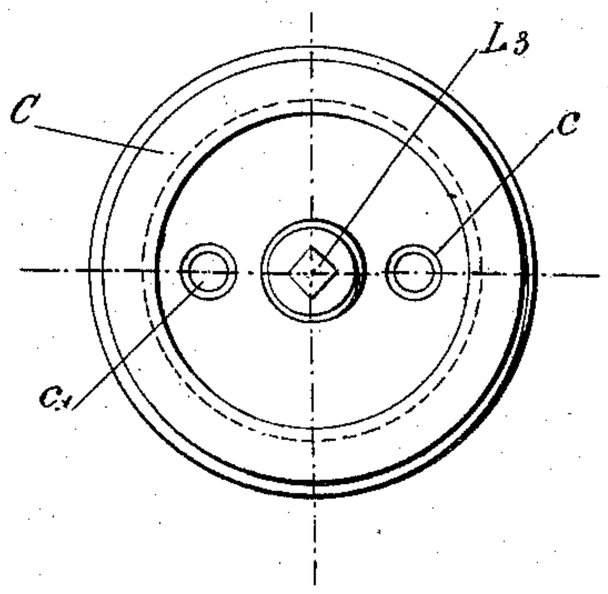


Fig. 2



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UNITED STATES PATENT OFFICE.

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CARBONIC BUNG.

SPECIFICATION forming part of Letters Patent No. 639,412, dated December 19, 1899.

Application filed December 29, 1897. Serial No. 664,372. (No model.)

To all whom it may concern:

Be it known that I, GEORGES LEJEUNE, a citizen of the French Republic, residing at Nantes, France, have invented certain new and useful Improvements in Carbonic Bungs; 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 present invention has relation to a bung which is provided with a receptacle containing liquid carbonic acid and with a so-called "tension-device-receiving" chamber which permits to bring the liquid carbonic acid into carbonic-acid gas, this being when desired and under low pressure. This construction of bung, which may be used with any kind of cask, permits of obtaining frothy beer while drawing same off from the cask on account of the formation of the carbonic gas passing from the bung into the cask as soon as the pressure has a tendency to decrease in the latter. This bung can also find its application in the preservation and in the drawing off of liquids, such as those that are not to come in contact with the atmospheric air.

With this apparatus all the reservoirs, air-pumps, and other expensive and complicated devices employed heretofore can be dispensed with.

My invention is illustrated in the annexed drawings, in which—

Figure 1 is a sectional elevation of the apparatus; Fig. 2, a plan view of the same with the plate S removed; Fig. 3, a sectional view through a line X X on Fig. 1; Fig. 4, the front view of the obturator interposed in the channel that communicates from the interior of the bung to the cask.

The apparatus consists of a metallic receptacle A, designed to oppose a very strong pressure, on which is screwed the body B of the tension-device-receiving chamber. The latter is screw-threaded at its upper end, and on this threaded part is screwed the bung proper, C, which, as shown in Fig. 1, is turned in a miter shape at its exterior end. This part can either be plain or screw-threaded, according to the shape of the socket adapted to the cask and on which it is to be fixed.

The tension-device-receiving chamber B has two openings, one of which, D, is for the introduction of liquid carbonic acid and the other, E, to exhaust gas from the bung into the cask. These two apertures communicate with the receptacle A through a central channel F, through which passes a rod G, provided with flattened surfaces *g* to allow for the circulation of the liquid carbonic acid or carbonic-acid gas into the channel F.

The rod G is screw-threaded at both ends, and is provided at its lower end with a valve H, which by applying itself on the seat H′ closes the communication between the reservoir A and the channel F.

The valve H is provided with a cap H^2, which serves to guide a spring K, the said spring having a tendency to keep the valve constantly on its seat. This spring K is placed in a tube K′, screwed on the tension-device-receiving chamber, and it rests at its lower end on a screw-threaded ring *k*, screwed into the tube K′ and provided with an aperture *k′* for the passage of the carbonic acid. In front of this aperture is placed a small metallic cloth k^2 to prevent the entrance of foreign bodies. The tension of the spring K can be regulated by screwing the ring *k* more or less into the tube *k′*.

On the upper part of the rod G is screwed a piston L, the surface of which should be as large as possible. This piston is bored with holes *l*, closed by an india-rubber valve *l′*, attached on the piston and on a crown l^2, used as a seat for a spring M by means of screws. The purpose of this arrangement is to allow the gas to exhaust through the apertures *l* when an excess of gas is produced. The piston L is provided at its lower end with an ebonite valve L′ similar to the valve H and which by resting on its seat L^2 cuts the communication between the two channels F and E. The tension of the spring M governs the gas-pressure under the piston L and in the cask. This tension may be regulated, as desired, by screwing more or less the piston L on the rod G. To this end the piston has on its upper part a square portion L^3, on which a spanner can be placed. A screw-threaded ring M′ is screwed on the body of the piston. This ring is adapted to govern the maximum tension to be given to the spring in order not to exceed a certain pressure in the cask. When

this maximum tension of the spring has been reached, the ring M′ comes to rest on the inner face of the bung and prevents the unscrewing of the piston.

The channel E, which causes the tension-device-receiving chamber to communicate with the cask, is shut by a small plate N, used as a spring. This plate prevents any accidental return of liquid into the bung, while allowing at the same time the gas to pass from the tension-device-receiving chamber into the cask. The obturator N is kept in place by a screw P, which is used at the same time to shut the channel D.

The bung C is provided with two holes *c* for the introduction of a fastening-key. Two other holes *c′* set the upper part of the tension-device-receiving chamber in communication with the exterior. The bung has on it a rim R, provided with a groove *r*, in which is sprung a safety-plate S, which is removed or destroyed when the bung is to be attached to a cask. The holes C′ serve for the passage of the acid into the cask.

Operation: The receptacle A of the bung having previously been charged with liquid carbonic acid under a strong pressure, the valve finds itself closed. The bung is fixed on the cask. Then I proceed to tighten the spring M by unscrewing the piston L. Directly the tension of the spring becomes stronger than the pressure operated on the valve H by the carbonic acid of the receptacle and by the spring K the valve H opens slightly and the gas passing through the channel F comes under the piston L and from here goes through the channel E into the interior of the cask. I continue to tighten the spring as the pressure in the cask becomes weaker through leaking or drawing off of the liquid from the cask. When it is required to fill the receptacle A with carbonic acid, the screw P and the obturator N are taken off, then the piston is screwed so as to cause the valve L′ to rest on its seat L^2, after which a tube is screwed in the threaded portion of the channel D, said tube bringing the carbonic acid which is liquefied either by cooling or by compressing same. When the receptacle A has been sufficiently charged with carbonic acid, the piston L is unscrewed from valve L′, whereby the pressure of the carbonic acid causes the valve H to rest on its seat H′. The obturator N and the screw P are then put back in place and the safety-plate fixed on the bung.

I claim—

A device of the class described, embodying a carbonic-acid container A and a tension-device-receiving chamber B united to form an integral member and communicating with each other by means of a central longitudinal channel or bore F, the chamber B having an apertured threaded cap C provided with a destructible end disk S, and a lateral passage for charging the container, a tube K′ extending into the container, a spring-pressed valve in said tube, a threaded rod G traversing said channel and operatively attached to said valve, a piston L on the upper end of said rod and embodying a valve adapted to normally close said channel, a spring bearing upon said piston, and means whereby the tension of said spring may be adjusted, substantially as described.

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

GEORGES LEJEUNE.

Witnesses:

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HUBERT.