J. C. G. HÜPFEL.

Salt-Injector for Beer-Kegs.

No. 212,800. Patented Mar. 4, 1879.

Fig: 1.

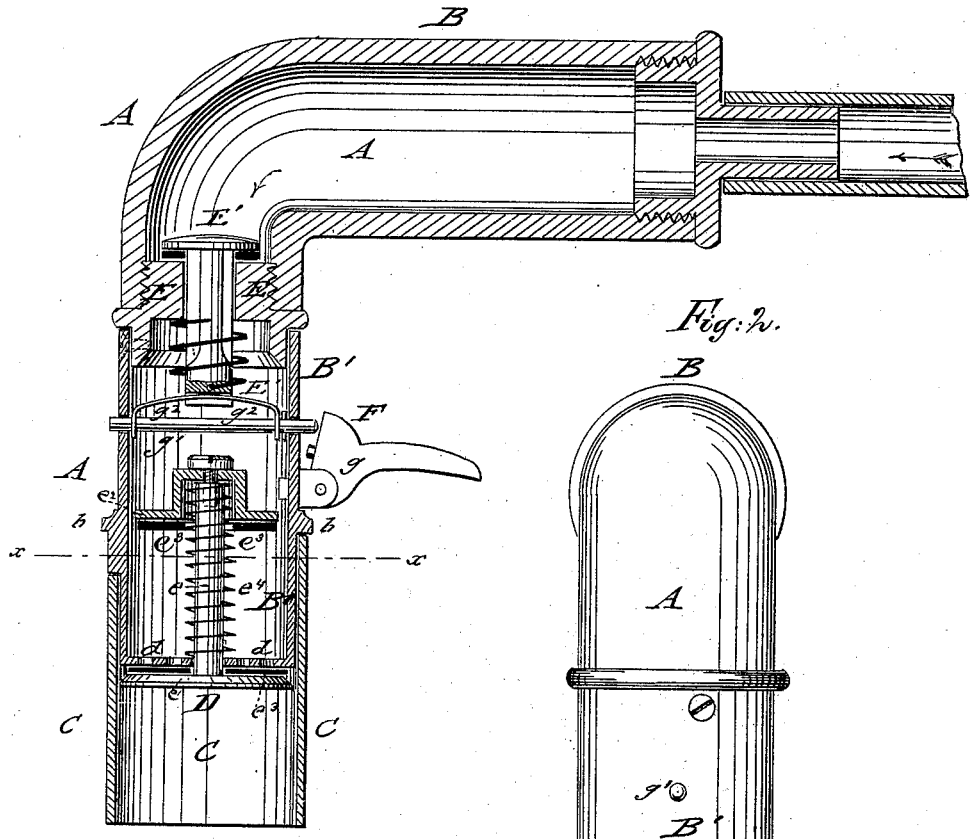


Fig: 2.

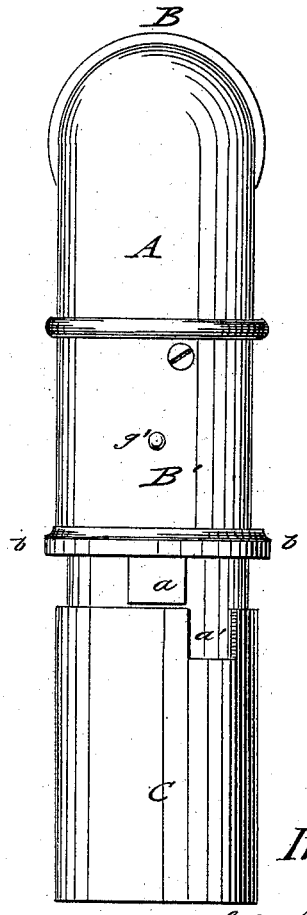
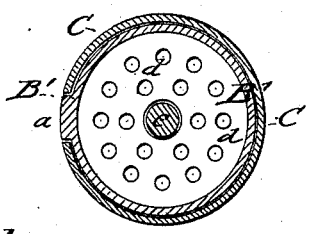


Fig: 3.



Witnesses:

Carl Karp

F. Mayer

Inventor:

John C. G. Hüpfel

by Paul Goepel

Attorney.

UNITED STATES PATENT OFFICE.

JOHN C. G. HÜPFEL, OF NEW YORK, N. Y.

IMPROVEMENT IN SALT-INJECTORS FOR BEER-KEGS.

Specification forming part of Letters Patent No. **212,800**, dated March 4, 1879; application filed December 23, 1878.

To all whom it may concern:

Be it known that I, JOHN C. G. HÜPFEL, of New York city, county and State of New York, have invented certain new and useful Improvements in Salt-Injectors for Beer-Kegs, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved salt-injector for beer-kegs. Fig. 2 is an end view of the injector; and Fig. 3, a horizontal section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

It is the general custom among brewers of lager-beer and other fermented liquors to supply each keg of beer, before it is closed by the bung, with a small quantity of bicarbonate of soda or other salt, which is dissolved by the acid contained in the liquid, so as to generate carbonic acid thereby, for the purpose of producing a more refreshing and better foaming beverage.

This process, commonly called "salting," has hitherto been accomplished in a very crude and irregular manner by a ladle, by which the salt is taken up and transferred to the kegs. Of course, the quantity of salt injected is varying, and cannot be supplied in accurately-graduated doses, nor adapted to the condition of the beer. The result is consequently the generation either of too great or of too small a quantity of carbonic acid, of which either alternative is objectionable; besides that it causes a considerable loss of time and material by the crude manner of handling the salt.

The object of my invention is to furnish to brewers an improved device for injecting into each keg an accurately-graduated quantity of bicarbonate of soda or other carbonic-acid-generating salt in a quick and convenient manner, and employing as the propelling agent either compressed air or steam, which are available in every brewery of certain dimensions, or spring power or other moving agents.

The invention consists of an injecting device provided with a handle and adjustable measuring-cup in connection with a spring-acted piston, suitable propelling mechanism, and a trigger mechanism for applying the power to the piston, so as to propel it forward for the ejection of the salt from the cup into the keg.

Referring to the drawings, A represents an elbow-shaped tubular stock, which is made of two parts of a handle, B, and of a barrel-shaped end, B′, to which a removable and interchangeable measuring-cup, C, is applied. To the handle end is attached a rubber or other tube, that connects the device with the air-pump for supplying the compressed air for working the device.

The measuring-cup C is capable of adjustment on the end B′, either by means of projections or checks *a* and recesses *a′*, as shown in Fig. 2, or by any other equivalent means, so that the quantity of salt to be injected may be regulated, as required. If a larger quantity of salt is required a larger cup, C, is slipped over the end B′ until stopped by the shoulder *b* of the same. The end portion B′ is closed by a perforated plate, *d*, having a central guide-perforation for the spindle *c* of a sliding and spring-acted piston, D. The piston D is formed of an outer disk, e^1, and of an inner guide-disk, e^2, which latter is screwed to the inner end of the spindle *e*, both disks having leather or other washers e^3, so as to close tightly onto the end plate *d*. A spiral spring, e^4, is interposed between the perforated end plate of the end portion B′ and the inner disk, e^2, of the piston, for the purpose of throwing the piston back as soon as the pressure is interrupted.

The inner disk, e^2, as well as its washer, is of less diameter than the tube B′, so that the compressed air may readily pass around the same into the space between the disk and the perforated end plate *d* of the stock. The air passes then through the holes of plate *d*, and acts on the piston D, throwing it forward until it is stopped by the contact of the disk e^2 with the end plate *d*. The washer at the under side of the disk closes then the holes of the end plate *d*, and prevents the escape of air.

The handles B and end portion B′ are separated by a valve-seat, E, and spring-valve E′, of which the latter is retained tightly on its seat, owing to the air-pressure and an intermediate washer. The valve E′ is raised whenever the piston is desired to be thrown forward by a suitable trigger mechanism, F.

This trigger mechanism is composed of an outer pivoted trigger, g, and of a closing cross-pin, g^1, which carries an elliptic spring, g^2, that is set into a recess in the lower end of the stem of the valve. The elliptic spring is so secured to the cross-pin that the sliding motion of the pin, as imparted by the trigger, causes the contraction of the spring, so that it presses on the valve-stem and lifts the valve from its seat, admitting thereby the compressed air to enter and act on the piston.

In place of the trigger mechanism described any other mechanism may be used.

The pneumatic injector is used as follows: The device is taken hold of at the handle in such a manner that the trigger can be readily reached by one finger, like the trigger of a pistol. The device is then forcibly pushed into the pulverized bicarbonate of soda without, however, touching the trigger with the finger, the force of the thrust filling up the measuring-cup at the end of the injector, and charging the same with a compact cartridge of salt. The measuring-cup of the injector is then inserted into the bung-hole of the keg and the trigger tripped by the finger, so that the valve is raised and air admitted to the piston. The pressure of the compressed air throws the piston instantly forward, and injects the cartridge into the beer or other liquid. On releasing the trigger the valve is closed, and the piston returns to its former position by means of its spring, as the air gradually leaks out from the space between the closing valve and the guide-disk, so that the cushioning spring of the piston returns the same to its normal position as soon as the pressure on the guide-disk has thus disappeared, the injector being then ready for the next charge.

In this manner the kegs may be supplied with the exact quantity of salt that is to be added to the liquid without any loss of salt, and in a very rapid manner.

The injector may also be constructed so as to be operated by steam in place of compressed air, in case the latter is not available, the actuating mechanism being then adapted thereto. If neither compressed air nor steam is available a coiled spring of suitable strength or other actuating agent may be employed for furnishing the required power; but as this requires the resetting of the device and the rewinding of the spring from time to time, the application of compressed air or steam is preferable whenever it is attainable, as it renders the injector a great deal handier and more effective for practical use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a tubular barrel or stock having a measuring-cup for the salt at one end thereof with a sliding and spring-cushioned piston, and with mechanism by which compressed air or any other moving agent is admitted to act on the piston for throwing it forward, substantially as described.

2. The combination of a tubular elbow-shaped stock or barrel having a handle at one end and an adjustable measuring-cup at the other end with a sliding and spring-cushioned piston, and with a valve and valve-actuating trigger mechanism, by which compressed air is admitted to pass to the piston and throw it forward, substantially as set forth.

3. The combination of a tubular barrel or stock having a perforated end plate and an adjustable measuring-cup with a sliding, guided, and spring-cushioned piston having inner disk and washer of less diameter than the stock, and with a valve and trigger mechanism, all arranged and operating substantially as described.

4. In a salt-injector for beer-kegs, the combination of the tubular barrel or stock having a perforated end plate and a measuring-cup with a sliding, guided, and spring-cushioned piston, as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 21st day of December, 1878.

JOHN C. G. HÜPFEL.

Witnesses:

PAUL GOEPEL,

ADOLF DENGLER.