An improved apparatus for preserving changeable liquids, also applicable as a hypodermic injector / [Felix De Backer].

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COMPLETE SPECIFICATION.

An Improved Apparatus for Preserving Changeable Liquids, also applicable as a Hypodermic Injector.

I, FELIX DE BACKER, of 53, Rue de la Chaussée d'Antin, Paris, in the Republic of France, Doctor of Medicine, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

A certain number of liquids cannot be preserved in contact with the air, either because the presence of oxygen produces in these bodies fermentation or decomposition, or on account of the germs which the air contains. These liquids have indeed been momentarily enclosed for the purpose of hypodermic injections in phials or vessels of glass sealed with a lamp, and which are opened at the moment of using, but the moment the mouth of the vessel is broken contact with the air is established which is immediately deleterious, and further any liquid which remains over must be thrown away.

The syphon which forms the object of this invention avoids these inconveniences and solves completely the problem of preserving changeable liquids, and of their easy use when required. In fact this syphon which may be made of any suitable dimensions may contain as much liquid as desired; the liquid itself enclosed under pressure is drawn from it as required, and the bottle whilst being emptied never allows the external air to penetrate.

Finally for hypodermic injections a needle is fixed at the mouth of the syphon, so that the liquid passes from the interior of the bottle under the skin without any contact with the air.

The apparatus is shown in section on an enlarged scale in the accompanying drawing.

Figure 1 is a sectional elevation of the whole apparatus,

Figure 2 a separate view of the lever, and

Figure 3 a separate view of the screw stopper.

It is composed of a bottle A of thick glass in the centre of which runs a glass tube B which descends to the bottom. This tube is mounted in a stopper E preferably of pure tin. A screwed ring H also of tin, allows the head of the syphon to be fixed to the neck of the bottle; tight joints are made by india-rubber washers K and O.

This head piece G of nickeled bronze or any other suitable material inside and outside, has a cylindrical recess which receives a piston valve S^1 and which is closed by a screw stopper R also made of similar material. The valve is made with a plug point for closing or opening as desired the mouth of the passage V which places the interior of the stopper in communication with its mouth.

The part forming the tight fitting piston head is composed of a leather ring or washer D. The valve is withdrawn under the action of a lever L pivoted at J which passes through two lugs of the stopper R. A spring F which bears on the two discs X of nickeled copper or other suitable material returns the valve to its seat as soon as the hand quits the lever L.

The mouth of the syphon is closed by a screw plug U of nickeled bronze or other suitable material (see Figure 3). When the apparatus is to serve for hypodermic injections the plug U is replaced by another one T perforated by a central passage Y and surmounted by a pointed nozzle I preferably of platinum and iridium, Figure 1.

The liquor being driven out of the bottle by the pressure of the gas contained, which pressure naturally decreases as the bottle is emptied, it is necessary to employ an arrangement for regulating the discharge. A good result is obtained

[*Price* 8*d*.]

by placing above the tube B a disc of cloth, gripped between two discs of wire gauze (nickeled copper) with this very simple arrangement the supply is practically constant and the speed suited to the discharge.

In order to use the syphon it is first entirely sterilized and then a vacuum is produced in its interior. It is then placed in communication, by a tube also sterilized, with the receptacle in which the liquid has been filtered, generally under the pressure of an inert gas. As soon as the valve S^1 is opened, the liquid flows into the apparatus. The syphon is filled up to a certain height and above that the gas is caused to enter under pressure. This gas may be either azote or any other suitable gas which has no action on the liquid. The lever L is then released, the valve closes, and the stopper U or the stopper I may be fitted on, according to which is to be employed.

The liquid thus stored up under pressure remains without change as long as may be desired, seeing it is never in contact with the air. In order to increase the precautions the screw stoppers U and I may be sterilized each time that they are fitted on, and before each hypodermic injection, allowing a certain quantity of the liquid to run out by the pointed nozzle I.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :—

1. An improved apparatus for preserving changeable liquids also applicable as a hypodermic injector consisting of a vessel A of suitable shape and dimensions, a long tube B penetrating therein and connected to a headpiece or cover G provided with a channel V which may be terminated as desired by a stopper U or a pointed nozzle I and of a piston S^1, the rod of which is surrounded by a spring and is operated by a lever L which serve to control the outflow of the liquid from the apparatus, all substantially as and for the purpose described and illustrated.

2. In a hypodermic injection apparatus the combination of a syphon vessel having an outflow controlling device and a pointed nozzle I, substantially as and for the purpose set forth.

Dated this 22nd day of June 1894.

WM. P. THOMPSON & Co.,
Of 6, Lord Street, Liverpool, Agents for the Applicant.

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FIG.1

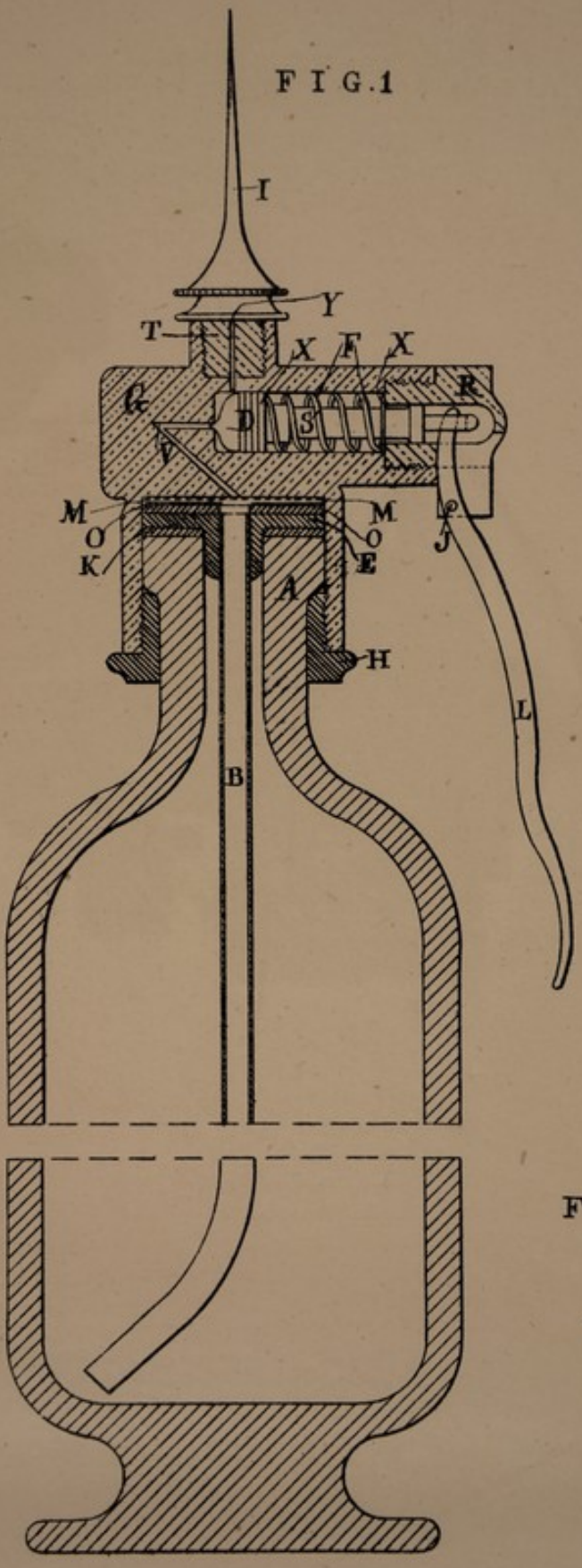

FIG.2

FIG.3

[This Drawing is a reproduction of the Original on a reduced scale]

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