A. PERON.

DEVICE FOR DISPENSING LIQUIDS.

APPLICATION FILED OCT. 9, 1915.

1,264,554.

Patented Apr. 30, 1918.

Fig. 2.

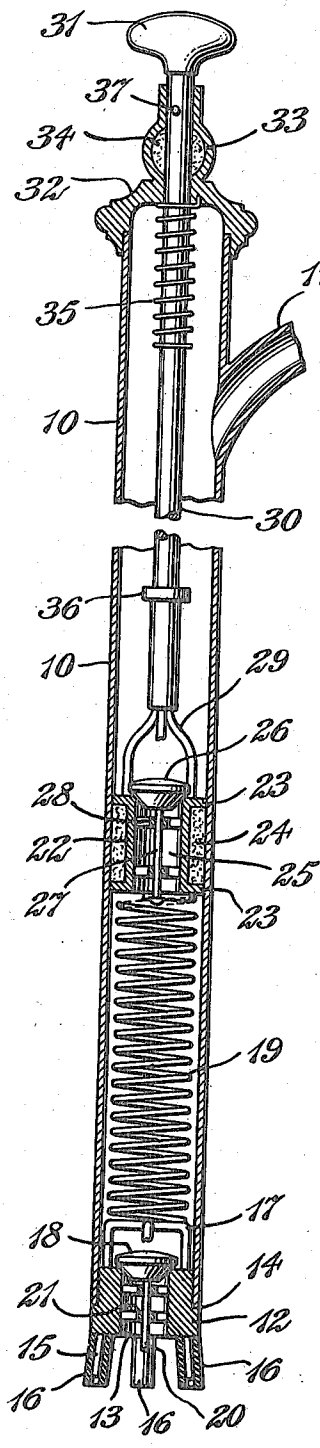


Fig. 1.

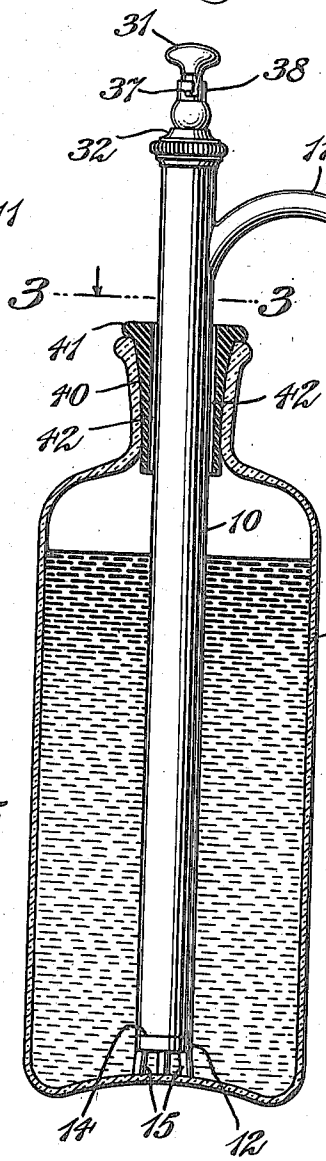


Fig. 3.

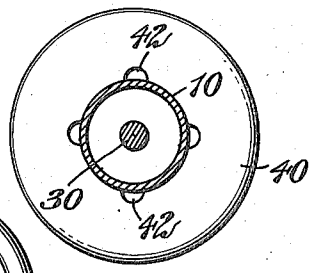
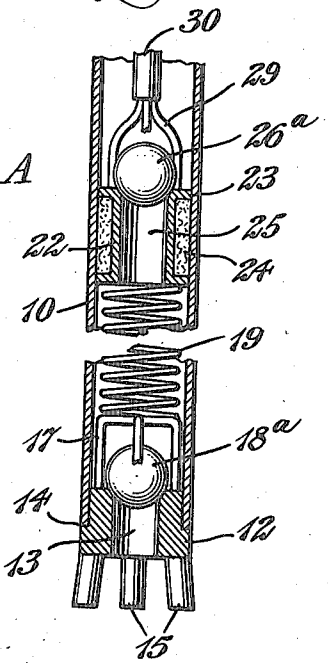


Fig. 4.



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DEVICE FOR DISPENSING LIQUIDS.

1,264,554. Specification of Letters Patent. Patented Apr. 30, 1918.

Application filed October 9, 1915. Serial No. 54,969.

To all whom it may concern:

Be it known that I, ANTHONY PERON, a citizen of the United States, residing at the city of New York, borough of Manhattan, county and State of New York, have invented a certain new and useful Device for Dispensing Liquids, of which the following is a specification.

This invention is a device for dispensing liquids, the same being intended for use in delivering a predetermined quantity of spring water from the original container, although it is apparent that my invention may be employed for dispensing other kinds of liquids.

In recent years it has been customary to bottle water at the spring, and to package other liquids at the source of origin, the liquid being dispensed as required from the original package.

So far as I am aware no provision has been made for dispensing spring water, or other potable liquids, from the original package when used on a dining table. Accordingly, the object of this invention is to dispense the liquid in a predetermined quantity from the original package, the device employed for this purpose being capable of use interchangeably with different containers and being easily inserted or withdrawn, and being, also, efficient and reliable in operation.

With these general objects in view, my invention consists of a compact portable pump mechanism of the double acting variety combined with a stopper device for retaining said pump fixedly in position, said stopper device being provided with vents for the inflow of air, although provision may be made for closing the air inlets when the pump is used for dispensing liquids other than water.

In a preferred form, the pump comprises a barrel or cylinder provided at the top with a curved delivery spout adapted to preclude the dripping of the liquid upon cessation of the liquid flow, a valved cage at the lower part of said barrel, said cage having cushions adapted to yieldably stop the descent of the pump when it is dropped into the container so as to avoid breaking the glass, a hollow piston reciprocable within the barrel, said piston having a valve, a spring for imparting a quick upward impulse to the piston, and an operating rod connected with the piston for depressing the latter so as to place the spring under tension.

Other features and advantages of the invention will appear from the following detailed description taken in connection with the drawings, wherein—

Figure 1 is a side elevation of my pump mechanism applied to an ordinary liquid container, said container and the stopper device for the pump mechanism being shown in vertical section.

Fig. 2 is a vertical longitudinal section on an enlarged scale through the pump mechanism, a portion thereof being broken away.

Fig. 3 is a horizontal sectional plan view, the plane of the section being indicated by the dotted line 3—3 of Fig. 1, and the container being omitted.

Fig. 4 is a vertical section through a part of the pump mechanism illustrating another form of valve for the reciprocatory piston and for the foot-piece at the lower extremity of the pump barrel.

The barrel 10 of the pump mechanism is an elongated cylinder the length of which substantially exceeds that of the container A within which the pump is adapted to be positioned for operation. At a point intermediate its ends, and preferably near the upper part thereof, the barrel is provided with a laterally extending delivery spout 11, the same being shown preferably as a curved tube of the form known as a goose-neck in order that the liquid may be delivered from the barrel upon the operation of the pump and to preclude the continued flow or dripping of the liquid upon the cessation of the pumping action. The lower end of the barrel is closed by a foot-piece 12, the same being preferably a casing provided with an axial opening 13 for the inflow of the liquid during the operation of the pump. Said foot-piece is reduced in diameter at its upper part to provide an external shoulder 14, said reduced upper part of the foot-piece being fitted within the lower open end of the pump barrel and being attached in any suitable way fixedly thereto. The foot-piece is provided with short depending posts 15, the same being incased with cushion material 16; as shown, the incasing material consists of rubber tubes secured over the posts and extending below the same, whereby the cushion material operates to relieve the container from the shock or jar incident to the

insertion of the pump mechanism into the container, or the dropping of the pump mechanism carelessly within said container, thus minimizing the tendency of the weighted pump to break the glass composing the container. The foot-piece 12 is provided, furthermore, with a cage 17 adapted to serve two purposes, first, as a means to limit the movement of a check valve 18, and as a seat or support for a piston operating spring 19. It is preferred to make the cage 17 and the posts 15 of wire, the lengths of which are attached to the foot-piece 12 so that the upper parts of the wires form the cage 17 and the depending parts of the wires constitute the posts 15, but, obviously, the detailed construction of the foot-piece with the posts and the cage may be varied as deemed expedient by a constructor. In Fig. 2 the check valve 18 is shown in the form of a free valve loosely positioned within the cage and provided with a depending stem 20, the latter being retained in position by guides 21 positioned internally of the passage 13, whereby the stem directs the movement of the valve 18 toward and from a seat provided upon the top face of the cage 12. It is not desired, however, to restrict the invention to the use of a valve having a stem, for the reason that in Fig. 4 a ball valve 18^a is employed in connection with the foot-piece 12 and the cage 17. Accordingly, I hold myself at liberty to employ either the reciprocating valve or the ball valve, but experience shows that the reciprocating valve 18 of Fig. 2 is preferable, for the reason that said valve allows the inflow of liquid to the pump barrel with greater freedom than the ball valve 18^a of Fig. 4.

22 designates a reciprocatory piston movable freely within the pump barrel. As shown, said piston is a casting provided with flanges 23 at its respective ends, the space intermediate said flanges containing a piston packing 24 whereby the piston is adapted to fit tightly within the pump barrel in order to have the necessary frictional engagement therewith. The piston is provided with an interior liquid passage 25, the lower end of said passage being open for free communication with the chamber of the pump barrel, whereas the upper end of the passage is adapted to be closed by a valve, one form of which is shown in Fig. 2 and another in Fig. 4. The valve 25 of Fig. 2 is a reciprocating valve seated upon the top of piston 22, said valve being provided with a depending stem 27 which is retained in position by guides 28 provided interiorly of the passage 25. The valve 26^a shown in Fig. 4 is a ball valve seated loosely upon the top of the piston 22 for closing the liquid passage 25 therein. The valve 26 of Fig. 2, or the valve 26^a of Fig. 4 are confined or held loosely in engagement with the piston by a cage 29 formed at the lower end of a pump rod 30, or said cage may be made separately from the pump rod and attached thereto. The cage 29 is attached firmly to the piston 22 so as to loosely confine the valve, and thus the rod 30 is connected fixedly to the piston for the purpose of enabling the operator to impart movement to the piston in one direction.

The spring 19 is composed of noncorrosive metal and is loosely fitted within the pump barrel intermediate the cage 17 of the foot-piece and the piston 22, the lower end of said spring 19 being seated upon the fixed cage 17, whereas the upper end of the spring 19 is in contact with the under surface of the piston 22, or is attached to said piston, as desired.

The operating rod 30 extends upwardly within the barrel and passes out of the same for a suitable distance, the upper free end of said rod being provided with a push-piece or operating member 31. The upper part of the pump barrel is closed by a cap 32 attached in any suitable way to said barrel, said cap being provided with a stuffing box 33 which contains a packing material 34 adapted for frictional contact with the rod 30 so as to preclude the leakage of liquid at the upper end of the barrel.

A cushion spring 35 is coiled loosely around the rod 30 near the upper part thereof, said spring being attached to the cap 32 in a suitable way, as shown in Fig. 2. The rod works loosely through the coiled cushion spring, said rod being provided with a collar 36 intermediate its ends. On the upstroke of the rod and the piston said collar 36 is adapted for contact with the lower part of the spring 35 so as to compress the latter and cushion the upstroke of the rod and the piston.

The rod 30 serves primarily as a means for manually forcing the piston in a downward direction within the barrel, whereas the spring 19 acts upon the piston for the purpose of imparting upward movement thereto. Under normal conditions the spring tends to lift the piston within the barrel, and accordingly the operating rod 30 protrudes for a considerable distance beyond the pump. In order that the piston and the rod may be retained in a lowered position within the pump I have provided means for locking the operating rod to the cap 32. Said locking means may be of different forms, but as shown the operating rod is provided with a pin 37 adapted to engage with a bayonet slot 38 provided in the stuffing box 33, whereby the rod may be lowered for the pin 37 to enter the slot 38, and thereafter the rod may be partially rotated to position said pin 37 in the offset

part of the slot 38, thereby locking the rod so that it is substantially incased within the pump barrel.

The barrel of the pump mechanism is of less diameter than the mouth of the container A in order that the pump may be easily inserted into the container or withdrawn in like manner therefrom, but to retain the pump in operative position relative to the container I employ a stopper device of the form shown in Figs. 1 and 3 of the drawings. The stopper 40 is composed of elastic or compressible material, such as rubber, and in order that said stopper may have friction-tight engagement with the mouth of the container the stopper is made tapering to secure a tapering fit with the mouth of the container. The stopper is provided at its upper part with an external flange 41 to limit the introduction of said stopper into the container. A central opening is provided for the reception of the pump barrel, and in addition to this opening the stopper is provided with a plurality of longitudinal passages 42, the same having communication with the barrel receiving opening, whereby the longitudinal passages 42 remain open when the stopper is in frictional engagement with the container and with the pump so that the openings 42 provide means to establish the free inflow of air within the container.

The operation is as follows:—The stopper device is slipped loosely upon the pump barrel, and the barrel is inserted into the container through the open mouth thereof, said stopper device being thrust forcibly into the mouth of the container and compressed into tight frictional contact with said container and with the barrel. The operating rod is released from locking engagement with the barrel and is reciprocated one or more times within said barrel. Upon the downward movement of the piston the valve 18 is forced to its seat, whereas the valve 26 is lifted, thus permitting the liquid to flow through the piston into the chamber of the pump barrel above said piston. On the upward movement of the piston under the action of the spring 19 the valve 26 is closed by the pressure of the water above it, whereas the valve 18 is opened by the suction of the piston, thus permitting additional liquid to flow into the barrel below the piston, said upward movement of the piston forcing a predetermined quantity of liquid from the barrel and out through the spout 11. The operations may be repeated as often as desired, but the pump is intended to be so proportioned as to deliver a tumblerful of water on each upward movement of the piston. As the liquid is pumped out of the container air is free to flow into the container through the inlets provided by the passages 42, whereby the inflowing air replaces the liquid dispensed from the container by the operation of the pump.

The foot-piece 12 provided with the depending posts elevates the lower part of the pump barrel a slight distance above the bottom of the container, thus providing for the free inflow of liquid into the barrel by the operation of the piston, but the liquid admitted to the barrel cannot flow out of said barrel when the piston moves in a downward direction because the pressure of the liquid upon the valve 18 closes the passage 13 in the foot-piece against the backflow of liquid. The elastic stopper 40 operates to frictionally retain the pump firmly in position when said pump is inserted into the container, but the pump and the stopper may easily be withdrawn from one container and inserted into another container, thus permitting the pump to be used in connection with different containers.

The parts composing my pump mechanism may be of any suitable material, such as metal, hard rubber, glass or any other material suitable for the purpose, but it is obvious that when made of metal said metal or an alloy of metal should be of a noncorrosive nature.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:

A liquid dispensing device for use interchangeably in liquid containers comprising an elongated piston barrel provided at its upper portion with a laterally extending spout, a closure fitted to the lower end portion of said piston barrel, said closure being provided with a liquid inlet and with a valve-cage, a valve seated upon the closure and retained by the cage for movement relatively to the liquid inlet, a valved piston, means for imparting motion in a downward direction to said valved piston, and a piston-actuating spring positioned intermediate the valve-cage and the under side of said piston, the respective end portions of said spring being in contact with the cage and with the piston and said spring operating by expansive force to impart movement to the piston in an upward direction within the piston barrel, whereby the valve in the piston is opened by the downward movement of the piston and said piston is forced in an upward direction by the energy of the spring to expel the liquid admitted to the upper side of said piston.

In testimony whereof I have hereunto signed my name.

ANTHONY PERON.