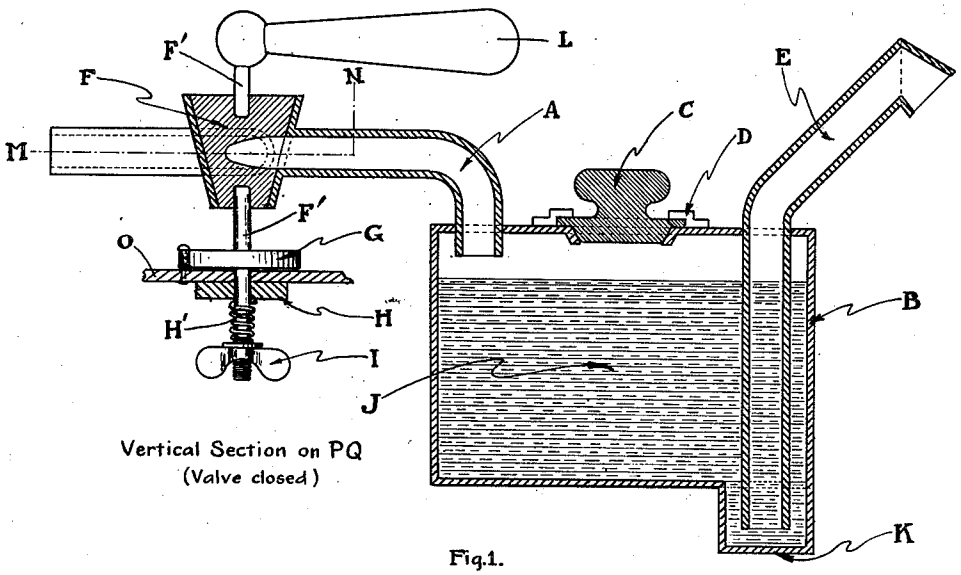
H. R. ZEAMANS.

LIQUID DISPENSING DEVICE.

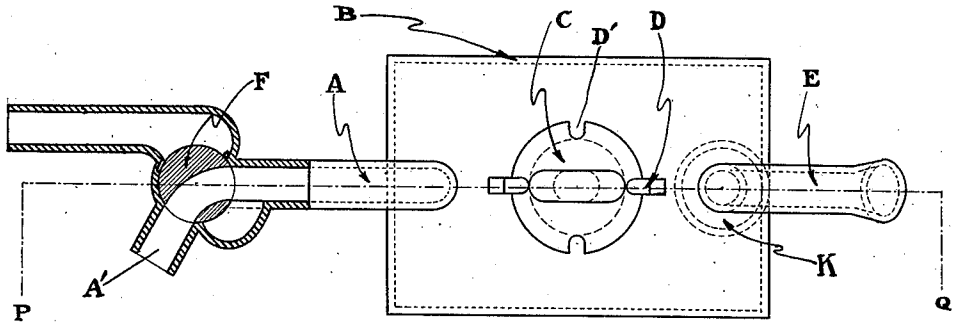
APPLICATION FILED APR. 28, 1911.

1,078,028. Patented Nov. 11, 1913.



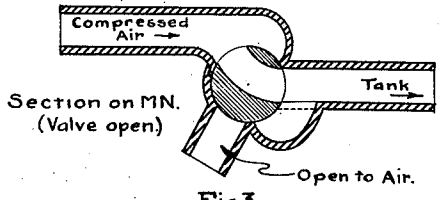
Vertical Section on PQ
(Valve closed)

Fig.1.



Top View (in section on MN.)
(Valve Closed.)

Fig.2.



Section on MN.
(Valve open.)

Fig.3.

WITNESSES:

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Max. E. Levine

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LIQUID-DISPENSING DEVICE.

1,078,028. Specification of Letters Patent. Patented Nov. 11, 1913.

Application filed April 28, 1911. Serial No. 623,942.

To all whom it may concern:

Be it known that I, HAROLD ROSCOE ZEAMANS, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Liquid-Dispensing Devices, of which the following is a specification.

This invention relates to liquid dispensing devices such as are particularly adapted for use, for instance, in the dispensing of syrups, etc., at soda water fountains.

More specifically; the invention relates to a dispensing device which will operate to measure the quantity of liquid being dispensed at each operation of the device, which quantities will be of predetermined and of uniform volume.

The particular object of this invention is to provide a dispensing device of this class which will be of substantial and practical construction, which will be simple and positive of operation, and in the construction of which no moving part is immersed in or in any way brought into contact with the liquid to be, or being, dispensed.

A further object is to provide a simple, reliable and improved mechanism which will operate to automatically control the duration of time during which the flow of liquid is continued at each operation of the device.

To these ends the invention comprises a closed container or receptacle for the liquid, having a suitable discharge pipe leading therefrom opening below the surface of the liquid, and having a pipe or other means leading thereinto, controlled by the improved timing device referred to, for feeding compressed air or the like into said receptacle to displace the liquid contained therein.

Other objects and aims of the invention, more or less broad than those stated above, will be in part obvious and in part specifically referred to in the course of the following description.

Combinations, arrangement of parts and applications of principles constituting the invention, and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention; Figure 1 is a vertical section with parts in elevation through an apparatus embodying my invention; Fig. 2 is a top plan view partly in section of the subject-matter of Fig. 1; and Fig. 3 is a horizontal, sectional view of the controlling valve.

Referring to the reference characters on the drawings B indicates a container or tank such as is used for instance for containing syrups in soda water fountains. The tank B is provided with a supply opening in its top, which is closed by a circular stopper C, which, as shown in Figs. 1 and 2 is held in place by engagement with the diametrically arranged catches D, a quarter turn of the stopper from the position shown in Fig. 2 enabling the stopper to be released from engagement by the catches D by reason of the notches D′. The stopper should fit snugly so that the tank will be substantially hermetically sealed so far as the stopper is concerned when the latter is in place.

E is an outlet pipe or discharge nozzle through which the liquid contained in the tank B is discharged, this pipe E extending through the top of the tank and into the interior thereof to a point near the bottom, and being shaped at its outer end so that drip of liquid from the pipe due to gravity alone will be prevented. Preferably, as shown in Fig. 1, the bottom of the tank is provided with a depressed portion K into which the inner end of the pipe E depends, so that substantially all of the liquid in the tank may be discharged therefrom through the pipe E under proper conditions of pressure in the tank.

The fluid pressure which brings about the discharge of liquid from the tank is introduced through an inlet pipe A entering the top of the tank, said pipe A leading to a suitable source of fluid pressure as for instance a compressed air reservoir and having a branch A′ opening to atmosphere. A 2-way valve F fixed on a spindle F′ determines whether the interior of the tank shall be open to atmosphere or to fluid pressure as will be obvious from an inspection of the drawings, a handle L being provided for manipulation of the valve. Obviously when the valve is turned to the position of Fig. 2, the fluid pressure is cut off from the

tank and the latter is open to atmosphere, while when the valve is in the position of Fig. 3 the tank is closed to atmosphere and open to fluid pressure which will cause discharge of the liquid in the tank through the pipe E so long as the fluid pressure continues and the supply of liquid in the tank endures. Obviously the time of the discharge may be regulated by hand in accordance with requirements, but I contemplate the provision of a mechanically controlled valve, which will be automatically returned from the position shown in Fig. 3 to that shown in Fig. 2 after a definite predetermined time interval, the length of which may be regulated as desired. As an illustrative embodiment of a mechanical means for accomplishing this result I have shown an ordinary clock spring as G wound about the spindle F′ of the valve having one end secured to the spindle and having its other end fixed to a stationary plate or support O. The spindle F′ extends through the support O and below the same where it is provided with a coil spring H′ adapted to be compressed between a wing nut 1, threaded upon the end of the spindle, and a friction washer H which is mounted to rotate with the spindle but movable longitudinally thereof. The washer H has its upper surface in frictional contact with the smooth under-surface of the plate O. The spring G having its inner end fixed to the spindle F′ serves to prevent longitudinal movement of said spindle through the plate O, and to receive the thrust of the friction means below the plate. The parts are arranged so that when the valve is turned to the position of Fig. 3 the rotation of the spindle will wind up the spring G, so that as soon as the handle L is released the force of the spring tends to return the valve back to the position of Fig. 2, the valve of course being limited to these two positions by means of suitable stops not shown. Consequently, it is necessary only to open the tank to fluid pressure whereupon discharge from the pipe E immediately begins, continuing throughout such predetermined time interval as is required for the closing of the valve by spring G. The length of time required for the closing movement may be readily controlled, as will be obvious, upon manipulation of the nut I whereby to increase or decrease the friction between members H and O, enabling the spindle F′ to rotate more or less rapidly as desired.

This device is particularly useful in connection with containers of flavoring syrups or the like for soda fountains, since it embodies an absolutely sanitary device and one in which, because of the prearranged control of the discharge from the container, there is great economy.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which as a matter of language, might be said to fall therebetween.

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

1. In a device of the kind described; a receptacle adapted to contain a liquid to be dispensed in prescribed quantities; a dispensing outlet from said receptacle; means for directing a fluid pressure for ejecting said liquid through said dispensing outlet; automatically operating means for controlling the duration of time during which said pressure is effective whereby the quantity of liquid dispensed is determined, said automatically operating controlling means being independent of said liquid and removed therefrom, and comprising a valve through which said fluid pressure passes into said receptacle; means for moving said valve to close said passage; and means independent of said valve, adjustable for permitting said valve closing means to close said valve with a relatively fast or a relatively slow closing movement.

2. In a device of the kind described; a receptacle adapted to contain a liquid to be dispensed in prescribed quantities; a dispensing outlet from said receptacle; means for directing a fluid pressure for ejecting said liquid through said dispensing outlet; automatically operating means for controlling the duration of time during which said pressure is effective whereby the quantity of liquid dispensed is determined, said automatically operating controlling means comprising a valve through which said fluid pressure passes into said receptacle, said valve having a spindle extending axially therefrom and projecting loosely through a relatively fixed plate; means for moving said valve to close said passage, comprising a coil spring disposed upon one side of said plate having one of its ends fixed to said plate and having its other end fixed to said spindle and serving to retain said spindle against longitudinal movement through said plate; and means adjustable for permitting said valve closing means to close said valve with a relatively fast or a relatively slow closing movement, comprising a friction member mounted upon said spindle to rotate therewith, but being free to move lon-

gitudinally thereof, adapted to frictionally engage the opposite surface of said fixed plate; a spring; and an adjustable nut carried upon said spindle adapted to tension said last mentioned spring for adjusting the degree of frictional contact between said friction member and the contacting surface of said fixed member.

In testimony whereof I have affixed my signature in the presence of two witnesses.

HAROLD ROSCOE ZEAMANS.

Witnesses:
SOLOMON BONEPARTH,
MAX E. LEVINE.