

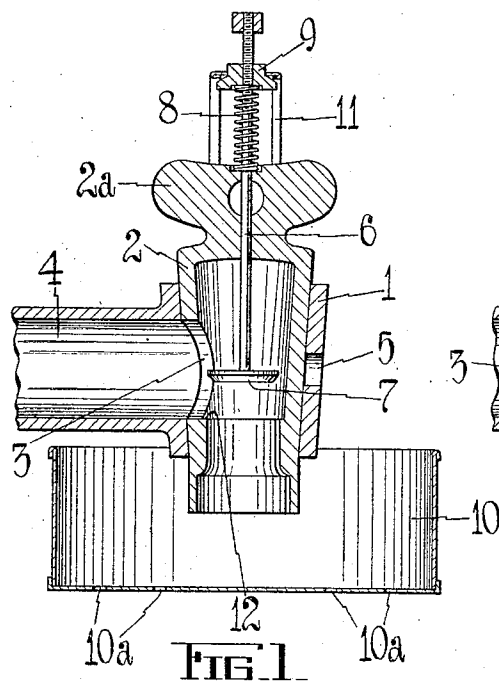
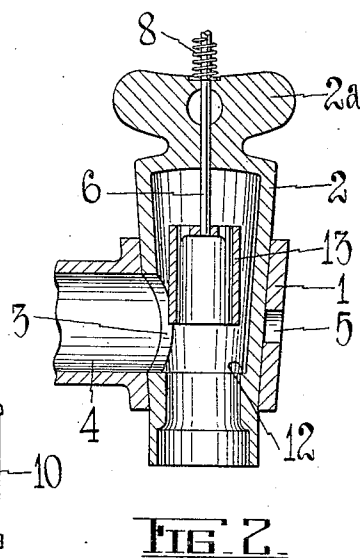
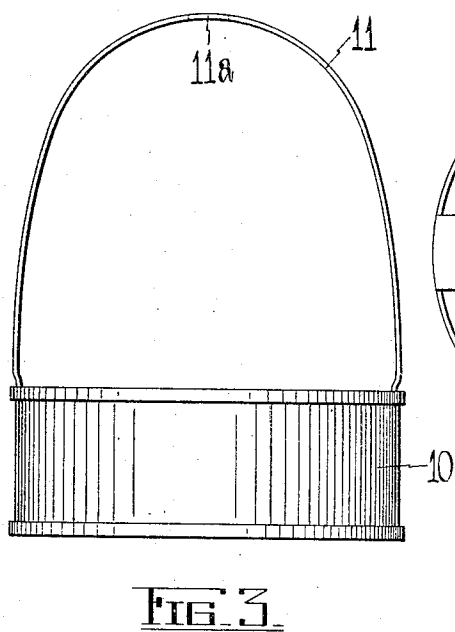
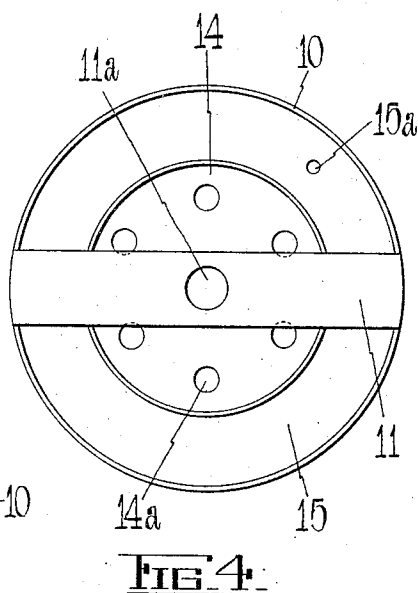
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MEANS FOR REGULATING THE FLOW OF LIQUID FROM CONTAINERS

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UNITED STATES PATENT OFFICE

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MEANS FOR REGULATING THE FLOW OF LIQUID FROM CONTAINERS

Application filed April 30, 1930, Serial No. 443,643, and in New Zealand May 23, 1929.

This invention relates to means for regulating the flow of liquid from containers, and has for its object the provision for the aforesaid purpose of improved means designed to secure an even flow of liquid from one container or vessel to another, regardless of the varying head of liquid in the emptying vessel, said improved means being particularly adapted for regulating the flow of milk from a vat to a separator, where it is desirable, if not necessary, that the supply of milk to the separator be as even or as consistent as possible throughout and at a predetermined rate.

By the use of the means to be hereinafter described, the liquid passing from one container or vessel to another is made to control its own flow so that the latter does not vary appreciably, with the varying head of liquid in the emptying vessel or container.

The invention consists in utilizing the weight of a body of liquid escaping from a vessel, to actuate a valve in the cock through which the liquid passes from the emptying vessel, so that said valve opens or closes the way through the cock, according to the amount of liquid escaping therefrom.

Means for enabling the regulation of the flow of the liquid to be carried out, comprise a vessel having a predetermined liquid outlet, suspended from a spring supported valve stem, the valve on which operates in the plug of the cock through which the liquid passes from the emptying vessel, said valve under the action of the spring normally leaving the way through the cock open.

The improved means are illustrated in the accompanying drawing and in order that the invention may be better understood it will be further described in conjunction with said drawing,

Fig. 1 being a sectional elevation of the improved means,

Fig. 2 a sectional elevation of the cock alone, showing an alternative form of valve, while

Figs. 3 and 4 are an elevation and plan view respectively of one form of the vessel which is suspended from the cock.

A plug cock is fitted to a vat or vessel from which the liquid is to pass, or to a pipe

from said vat or vessel, said cock comprising a body 1 and a hollow plug 2 open at its lower end and closed at its upper end, which is also provided with a handle 2^a. A radial port 3 is formed in the plug 2 in line with the inlet 4 to the cock body 1, so that by causing said port 3 to register with the inner end of the inlet 4 liquid can pass through the cock, escaping therefrom through the open lower end of the plug 2.

A port 5 in the body 1 enables the plug 2 to be seen and by turning said plug so that the port 3 can be seen through the port 5, the way through the cock is completely closed by the plug 2.

Passing vertically through the top of the plug 2 is a valve stem 6 carrying on its lower end a valve 7 which is normally maintained about half way up the port 3 under the action of a spring 8 surrounding the stem 6 and in compression between the top of the plug and a nut 9 which screws and is adjustable on said stem 6 in order that the compression of the spring 8 may be regulated as desired.

The vessel 10 which is made with a diameter exceeding its depth, contains one or a plurality of holes or perforations 10^a in its bottom, so that liquid can escape therefrom only at a predetermined rate, said vessel 10 being suspended by a bridle handle 11 from the nut 9 on the valve stem 6, so that it is immediately below and will receive liquid passing from the open lower end of the plug 2.

The inner surface of the plug 2 below the port 3, is formed with straight parallel sides, at the top of which is a circular ledge 12 level with the bottom of the port 3.

The nut 9 is formed with a boss which passes through a hole 11^a in the handle 11, the latter resting on the lower portion of the nut, which is of greater diameter than the boss portion.

With the way through the cock opened by the plug 2, liquid flows from the vat or the like through the cock into the suspended vessel 10, the valve 7 on the stem 6 being set by means of the nut 9 and compression spring 8, so that with a normal flow of liquid, it leaves the way through the plug open, to obtain a desired level of liquid in the vessel 10,

for delivery to a separator bowl or elsewhere as required. Should the rate of flow of the liquid through the cock be altered owing to varying heads of liquid in the vat or container from which the latter is being obtained, the quantity of liquid held in the vessel 10 will also vary, and so lower, or allow the latter to rise under the action of the spring 8, and to take with it the valve stem 6 and valve 7 to close or open, or so adjust the way through the cock, whereby the liquid level in the vessel 10 will adjust itself to that necessary to ensure an even discharge of liquid through the outlet from said vessel 10 which outlet consists of the hole or holes 10^a formed so that with a predetermined level of liquid in the vessel 10 liquid discharges therefrom at a desired rate. By adjusting the nut 9 and consequently the spring 8, the liquid level in the container 10 can be raised or lowered as desired.

Instead of using the plunger form of valve illustrated in Fig. 1, a cylindrical valve 13, Fig. 2, may be used, the plug 2 being made high enough to enable said valve to clear the port 3 when it is required to have the way through the cock fully opened.

Also instead of a single compartment suspended vessel 10, the latter may be divided by a circular partition into an inner and an outer compartment, the inner compartment 14 having a plurality of holes or perforations 14^a in its bottom, while the outer compartment 15 has only a single hole or perforation 15^a in its bottom.

What we do claim and desire to obtain by Letters Patent of the United States of America is:—

1. In liquid flow regulators, a liquid discharge cock including a body, a hollow plug rotatable in the body and open at its lower end and having a radial port, a valve arranged within the plug, a stem carrying the valve and slidable through the top of the plug, a spring about the stem and above the plug, for supporting a nut adjustably engaged on the stem and acting to adjust the tension of the spring, and a vessel with one or more liquid outlets of predetermined area therein directly suspended from the nut and positioned beneath the lower open end of the plug.

2. In liquid flow regulators as claimed in claim 1, wherein a bridle handle is provided for the suspended vessel and is arranged on the stem and supported by the nut.

In testimony whereof we have signed our names to this specification.

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