April 1, 1941. L. C. CONEY 2,237,215

FLOW REGULATING AND CONTROL DEVICE

Filed Nov. 28, 1938

Fig. 1.

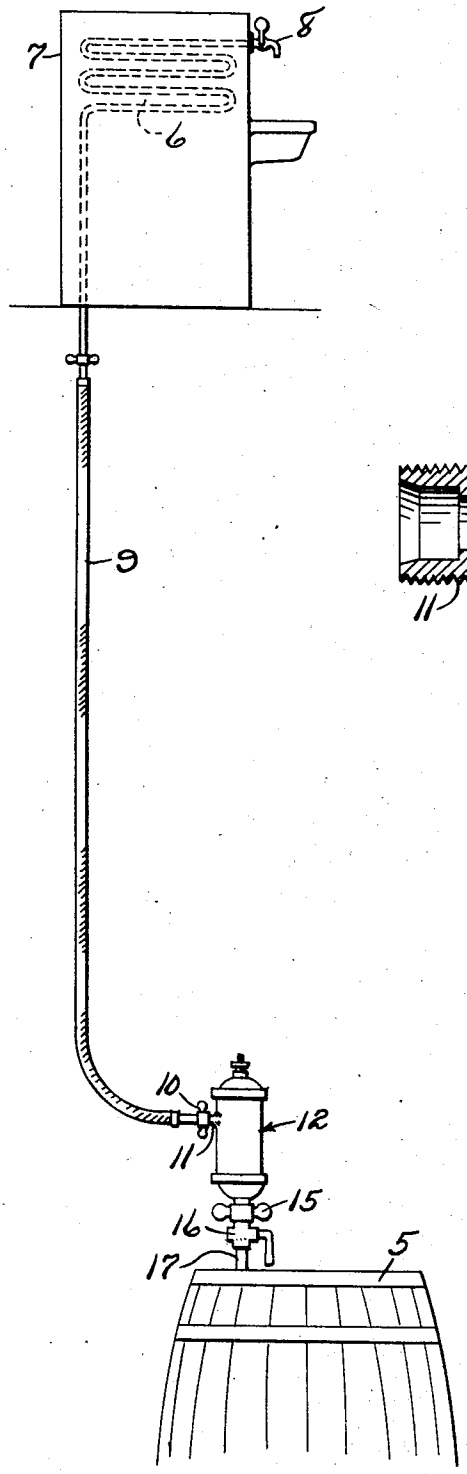
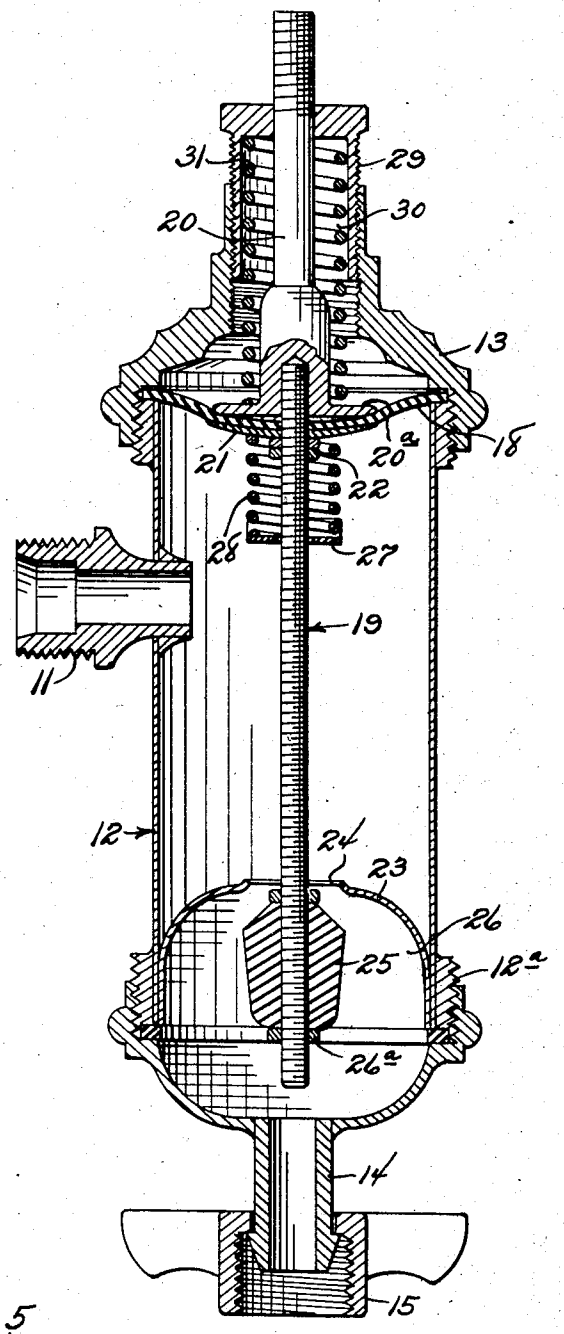


Fig. 2.



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Patented Apr. 1, 1941 2,237,215

UNITED STATES PATENT OFFICE

2,237,215

FLOW REGULATING AND CONTROL DEVICE

Lewis C. Coney, Philadelphia, Pa.

Application November 28, 1938, Serial No. 242,830

1 Claim. (Cl. 50—23)

My invention relates to pressure control devices and more particularly to that class utilized in connection with the dispensing of beer and the like.

One of the principal objects of my invention is to provide a pressure regulating device adaptable for connection with beer dispensing apparatus and which is so constructed and arranged as to regulate the flow of beer in a manner to preclude excessive foaming of the beer and at the same time permit dispensing of desired quantities thereof having heads of uniform size.

Another object of my invention is to provide a device of the above described character which is simple in construction, durable in use, efficient in operation and economical in manufacture.

Other objects and advantages will be apparent from the following description, appended claim and annexed drawing.

Referring to the drawing wherein like reference characters designate like parts throughout the several views:

Figure 1 is a side elevation of a beer dispensing apparatus having my invention incorporated therein.

Figure 2 is a longitudinal sectional view on an enlarged scale of my invention.

In practicing my invention I provide a keg or container 5 having therein a quantity of beer or the like and which is connected in a manner as hereinafter set forth to a cooling coil 6 located within a cool chest 7. One end of said coil is equipped with a faucet 8 disposed outwardly of the chest and the opposite end connected to one end of a flexible conduit 9. The opposite end of the flexible conduit 9 is connected by means of a winged lock nut 10 to an outlet connection 11 fashioned on the upper section of a casing 12 forming part of my device. The casing 12 is of an elongated configuration having a threaded upper end to which is threadedly secured a dome-shaped top 13. The lower end of the casing is provided with a threaded section 12a on which is threaded an inlet fitting 14 extending downwardly therefrom and having rotatably mounted thereon a winged connecting nut 15 effecting connection with the upper end of a cut off valve 16. The lower end of the valve 16 is connected to the upper end of an outlet pipe 17 extending within the barrel through the head of the latter as clearly illustrated in Figure 1. A gasket 12b is interposed between the section 12a and fitting 14 to provide a leakproof connection. Interposed between the upper end of the casing 12 and the lower abutting face of the top 13 is a diaphragm 18 receiving centrally therethrough the upper threaded section of a valve stem 19.

The upper end of the valve stem is adjustably threaded within the lower enlarged portion of a guide rod 20, said portion being fashioned on the lower end thereof with a circumferentially extending flange 20a engaging the upper face of the diaphragm. A washer 21 underlies and engages the lower face of the diaphragm and is secured in engagement therewith by means of a pair of nuts 22 and which coact with said portion of the rod 20 to secure said diaphragm adjustably secured to the upper end of the valve stem 19.

Subjacent the outlet connection 11 and above the inlet fitting 14, the casing is formed with an arcuate shaped partition 23 having a centrally disposed discharge port 24 formed therein and which receives therethrough the lower threaded end of the valve stem 19 on which is secured a valve member 25 adapted for closing the port 24 as hereinafter set forth. The arcuate shaped partition 23 coacts with the bottom of the casing to form a lower chamber 26. The upper section of the casing, above the connection 11, is formed with a spider 27 forming a bearing for the valve stem 19. Interposed between said spider and the washer 21 is a relatively light coil spring 28 located about the valve stem and which serves to urge the valve stem upwardly towards the top 13 through the medium of flexing said diaphragm whereby to effect closing of the port 24 by the valve member 25.

Adjustably threaded within the top 13 is an adjusting nut 29 formed with a threaded shank having a bore 30 in which is located a relatively heavy coil spring 31, the upper end of which engages the closed end of the bore while the lower end of said spring engages the flange 20a to normally maintain the diaphragm 18 in downwardly flexed condition whereby the valve member 25 is disposed below the port 24 against a combined stop and bearing member 32 to permit a flow of liquid from said intake fitting through said outlet connection.

In operation, the parts being in the position illustrated in Figure 2, beer under pressure flows from the keg 5 through the fitting 14, port 24, outlet connection 11 and upwardly through the conduit 9 into the coil 6 for discharge through the faucet 8. During the flow of the beer, should the same be "wild" or under too much pressure, the pressure thereof against the diaphragm 18 causes upward flexing of the latter thereby moving the valve member 25 towards the port 24 to

regulate the flow therethrough, thus relieving excess pressure in the beer discharged through the faucet 8 with a resultant minimum amount of head on the drawn beer.

Obviously, by adjusting the spring 31 through the medium of the nut 29 the flow of beer may be regulated through the device in a manner to govern the amount of head thereon. In instances where beer or the like will not be drawn from the keg for an appreciable length of time the cut off valve 16 may remain in open position for the reason that valve member 25 will close port 24 due to the weight of the beer in the coils which flexes the diaphragm 18 upwardly. When the port 24 is thus closed, gases from the barrel are precluded from being transmitted into the coil 6. It is to be understood that the device may be constructed of non-corrosive material to preclude tainting of the beer and thereby eliminate harmful effects therefrom. Furthermore, while I have illustrated my invention in connection with governing and controlling the flow of beer, the device may be utilized in connection with the governing and control of other liquids without departing from the spirit of the invention or scope of the appended claim.

What I claim is:

A device of the character described, comprising a vertically disposed cylindrical casing having an inlet at its lower end and an outlet below its upper end, a diaphragm resting upon the upper open end of the casing, a dome shaped cap screwed upon the casing and clamping the diaphragm on the upper edge of the casing, a guide rod secured to the diaphragm and extending into the dome shaped cap, a spring surrounding the guide rod and engaging the diaphragm and normally forcing the same downwardly, means for varying the tension of said spring, a transverse bar below the diaphragm above the outlet, a valve stem extending through the diaphragm and secured in the guide rod, a coil spring surrounding the stem and engaging the lower face of the diaphragm and the upper face of the transverse bar and of a less strength than the first mentioned spring, an arcuate shaped partition adjacent the lower end of the casing and having an enlarged opening therein through which the valve stem passes, a valve below said partition on the valve stem and adapted to co-operate with the opening in the partition, and means for adjusting the valve on the valve stem.

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