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(54) Title: A DEVICE FOR AUTOMATICALLY DISPENSING FIZZY DRINKS FROM CONTAINERS, SUCH AS BOTTLES AND THE LIKE

(57) Abstract: A device for automatically dispensing fizzy drinks from containers, such as bottles and the like, comprising a first circuit adapted to dispense the drink from said container and a second circuit adapted to blow inert gas towards said container, said first circuit comprising means for adjusting the flow pressure of said drink.

A DEVICE FOR AUTOMATICALLY DISPENSING FIZZY DRINKS FROM CONTAINERS, SUCH AS BOTTLES AND THE LIKE

Field of the invention

The present invention relates to the field of automatic drink dispensing devices and apparatuses. In particular, it relates to the field of devices for dispensing fizzy drinks from bottles and similar containers.

Prior art

Devices and apparatuses adapted to automatically dispense drinks from containers, such as bottles and the like, are known from the prior art. In some of these devices and apparatuses, the bottles or similar containers are maintained upside-down and a valve is appropriately opened for dispensing the drinks contained therein, allowing the drink to fall by gravity into a vessel appropriately positioned at the mouth of the container itself.

Others contemplate maintaining the bottles or similar containers in vertical position standing on their bottom and the beverage is dispensed by means of two tubes introduced into the bottle through the cap of the bottle itself. An inert gas is blown into the bottle through one of the aforesaid tubes, thus maintaining the drink pressurized. When the dispensing tap associated with a tube is opened, the pressurized gas allows to dispense the drink through the other tube. Devices and apparatuses of the latter type are particularly suitable in all cases in which the organoleptic quality of the beverage, such as wine, contained in the bottle would be decreased by turning the bottle upside-down.

The devices and apparatuses for automatically dispensing drinks, available from the prior art, are not however adapted to maintain the typical effervescence or perlage of fizzy drinks. For this reason, it is thus apparent that the automatic drinks dispensing devices and apparatuses available from the prior art are not able to be used for carbonated or fizzy drinks, the drink being a carbonated soft drink or high-quality champagne.

Especially in the case of champagne and sparkling wine, effervescence and perlage are indeed essential features for the organoleptic properties of the drink and a possible automatic dispenser needs necessarily to maintain such properties intact also after the bottle has been opened and after some of its contents has

been dispensed.

Therefore, it is an object of the present invention to introduce a new device for automatically dispensing fizzy drinks from containers, such as bottles or the like, adapted to preserve the effervescence and perlage intact until the last glass is dispensed. The device according to the present invention thus comprises a dispensing block for fizzy drink dispensing devices comprising means adapted to maintain the effervescence of the drink for some time upon the opening of the container or bottle sufficient to dispense the whole content of said container.

Brief description of the drawings

Fig. 1 is a block chart of the device according to the present invention.

Fig. 2 shows a preferred embodiment of the pressure reducer filter according to the present invention.

Summary of the invention

The present invention relates to a device for automatically dispensing fizzy drinks from containers, such as bottles or the like, characterized by a dispensing block comprising a tap adapted to carry out the dispensing operation by blowing inert gas, so as to preserve the effervescence and perlage of said fizzy drink intact until it is finished.

Detailed description of the invention

With reference to the accompanying drawings, the device according to the present invention comprises a tap block 10, adapted to engage the opening of a bottle or similar container for drinks and to adjust the release of the drink contained therein. Said tap block 10 comprises a first circuit associated with the operation of dispensing said drink and a second circuit associated with the operation of blowing inert gas, each of said circuits comprising at least one solenoid valve.

In greater detail, said tap block 10 comprises an element 11, preferably truncated-cone in shape, adapted to engage the opening of the container from which the drink can be drawn, a first circuit associated with the operation of dispensing the drink and a second circuit associated with the operation of blowing inert gas.

Said first circuit comprises in turn: a first channel 12 adapted to draw into the containing vessel 13 of the beverage and to withdraw the drink to be dispensed, by means of said element 11 and a second channel 14 - which connects said

element 11 to the dispensing spout 17 of the dispensing block 15 - comprising in turn pressure reducer means, cooling means associated with said pressure reducer means, a first solenoid valve 16 or similar means adapted to interrupt the flow of liquid in said second channel 14.

Said second circuit comprising in turn:

gas dispensing means, preferably dispensing air or inert gas, associated with a third channel 19 associated, in turn, with said element 11 and within said container 13 by means of a gas flow interruption means comprising a mechanical switch preferably connected to appropriate means for detecting the presence of said container 13; pressure adjusting means for the gas dispensed from said third channel 19, preferably comprising a sensor 21 of the pressure inside said container 13, and a proportional valve 22 adapted to adjust the pressure of the gas dispensed by said first channel 19 to a value which is a function of the value read from said pressure sensor 21; a fourth channel 20 associated with said gas dispensing means through a pressure reducer 28 and with said dispensing block 15 through gas flow interruption means comprising, for example, a second solenoid valve 18.

In a preferred embodiment of the present invention, said pressure adjusting means of said second channel 14 and said cooling means associated therewith comprise a conduit 23, preferably comprising a plurality of coils and a Peltier cell cooler 26 connected thereto. The block comprising said conduit 23 and the corresponding Peltier cell cooler 26 connected thereto may be insulated, e.g. by appropriate resin-coating. In a preferred embodiment of the present invention, said first channel 12 advantageously comprises further pressure adjusting means, e.g. comprising a first pressure reducer filter 27 connected to the end of said first channel 12 immersed in the container. With reference to accompanying Fig. 2, said pressure reducer filter 27 can be provided by means of a cylinder, having a diameter substantially equal to the diameter of said channel 12, provided at the ends with two pierced cylinders 30 and filled with metal balls 31 having suitable diameter, e.g. 1 mm. Said pressure reducer filter 27 may further comprise a dedicated connector 32 at one of its end to promote the connection thereof to said channel 12.

During normal operation, the bottle 13 containing the fizzy drink to be dispensed is inserted so as to engage the opening thereof with said element 11; said means for detecting the presence of said container 13, by means of said mechanical switch, enable the flow of inert gas from said first dispensing means, by means of said channel 19 towards the container 13 of the drink to be dispensed. The inert gas pressure is adjusted by said proportional valve 22 to a value equal to that inside the bottle 13, read from said pressure sensor 21.

The inert gas enters into container 13 causing the release of the drink which fills said first channel 12 and then transits in said second channel 14, by means of said conduit 23 comprising a plurality of coils, up to said first solenoid valve 16 and then when said first solenoid valve 16 opens, is dispensed into the user's glass by means of said dispensing block 15.

Said conduit 23 comprising a plurality of coils allows to reduce the pressure to the value present inside the container (from approximately 1.5 bar to values even in the 5-6 bar range) up to the atmospheric pressure value at which the drink is poured into the glass. This allows to maintain the pressure in the bottle constant and practically equal to the pressure present prior to opening.

Once the step of dispensing has been ended by closing said first solenoid valve 16, said second solenoid valve 18 allows, through said second circuit, to clean the dispensing channels inside said dispensing block 15 by blowing a reduced pressure gas coming from said fourth channel 20, which inside the dispensing block 15 joins the drink dispensing channel 14.

Said second circuit may advantageously comprise a further channel 25, associated with said fourth channel 20 by means of a solenoid valve 24 and connected, within said dispensing block 15, to said second channel 14 and adapted to control a second gas flow at reduced pressure, in an opposite direction to the dispensing one, and having the task of cleaning said second channel 14 after the extraction of an empty container and before the subsequent insertion of a full container.

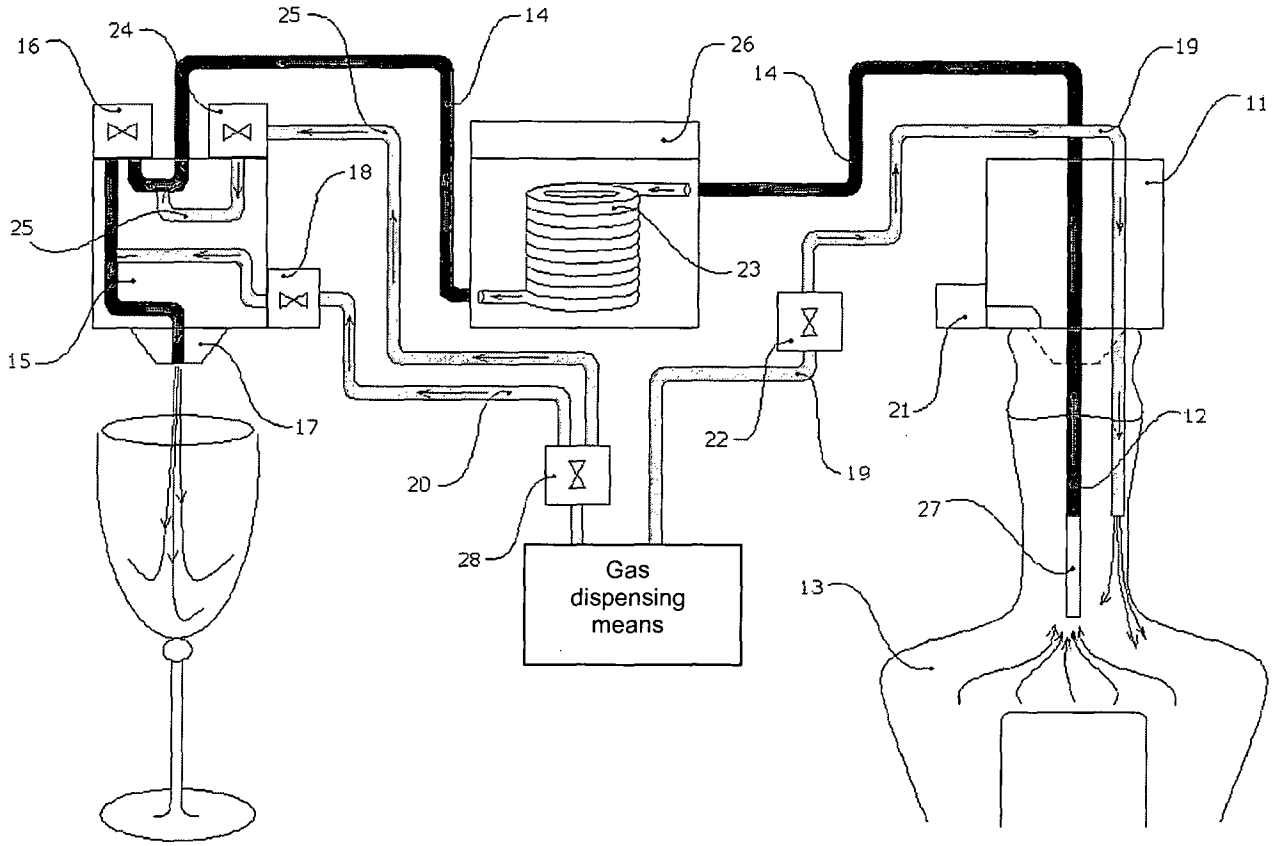
CLAIMS

1. A device for filtering and reducing the pressure (27) of a liquid, adapted to be inserted into a channel (12) travelled by said liquid, comprising a main cylinder, having a diameter substantially equal to the diameter of said channel (12) and filled with metal balls (31), and two further pierced cylinders (30) arranged at the two ends of said main cylinder.
2. A device according to claim 1, comprising a specific connector (32) at one of its end to promote the connection thereof to said channel (12).
3. A device for automatically dispensing fizzy drinks from containers, such as bottles and the like, comprising a first circuit adapted to dispense the drink from said container, and a second circuit adapted to blow inert gas towards said container, said first circuit comprising: an element (11), adapted to engage the opening of the container (13) from which the drink is drawn; a first channel (12) adapted to draw into the container (13) and withdraw therefrom the drink to be dispensed through said element (11); a second channel (14), which connects said element (11) to the dispensing spout (17) of the dispensing block (15), a first solenoid valve (16) or similar means adapted to interrupt the drink flow within said second channel (14); said second circuit comprising: means for blowing air or inert gas associated with a third channel (19) and with a fourth channel (20), said third channel (19) being associated in turn with said element (11) and within said container (13) through means for interrupting the gas flow and through means for adjusting the pressure of the dispensed gas; said fourth channel (20) being associated with said gas dispensing means through a pressure reducer (28), and with said dispensing block (15) by mean of a second solenoid valve (18) or similar gas flow interrupting means, characterized in that said first circuit comprises means for adjusting the pressure of said drink.
4. A device according to claim 3, wherein the gas flow interrupting means comprise a mechanical switch preferably connected to suitable means for detecting the presence of said container (13).
5. A device according to claims 3-4, wherein said means for adjusting the

pressure of the gas dispensed from said third channel (19) comprise a sensor (21) of the pressure inside said container (13) and a proportional valve (22) adapted to adjust the pressure of the gas dispensed from said first channel (19) to a value which is a function of the value read from said pressure sensor (21).

6. A device according to claim 5, wherein said means for adjusting the flow pressure of said drink comprise suitable cooling means.
7. A device according to claims 3-6, wherein said means for adjusting the flow pressure of said drink comprise a conduit (23) having a suitable section and comprising a plurality of coils.
8. A device according to claims 5-7, wherein said cooling means comprise a Peltier cell cooler (26).
9. A device according to claims 7-8, wherein the block comprising the plurality of coils of said conduit (23) and the corresponding Peltier cell cooler (26) connected thereto is insulated.
10. A device according to claims 3-9, wherein said means for adjusting the flow pressure of said drink further comprise a pressure reducer filter (27).
11. A device according to claim 10, wherein said pressure reducer filter (27) is connected to the end of said first channel (12).
12. A device according to claims 10-11, wherein said pressure reducer filter (27) can be provided by means of a cylinder, having a diameter substantially equal to the diameter of said channel (12), provided at the ends with two pierced cylinders (30) and filled with metal balls (31) having a suitable diameter.
13. A device according to claim 12, wherein said pressure reducer filter (27) further comprises a dedicated connector (32) at one of its end to promote the connection thereof to said channel (12).
14. A device according to claims 3-13, wherein said second circuit may comprise a further channel (25), associated with said fourth channel (20) by means of a solenoid valve (24) and connected, within said dispensing block (15), to said second channel (14) and adapted to control a second gas flow at reduced pressure, in an opposite direction to the dispensing one, and having the task of cleaning said second channel (14) after the extraction of an empty container

and before the subsequent insertion of a full container.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Gas dispensing means
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Fig. 1

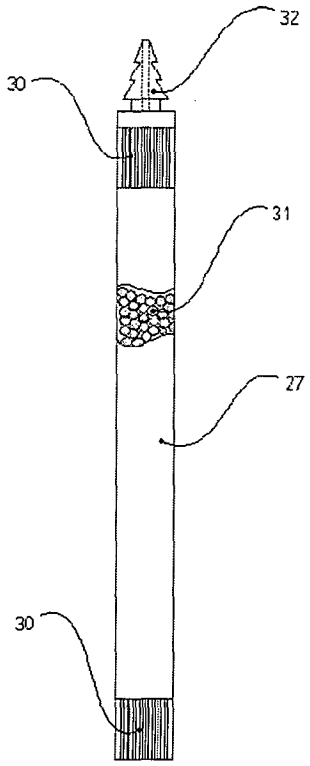
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Fig. 2