

TAP FOR BEVERAGE DISPENSING DEVICES FROM RECEPTACLES SUCH AS BOTTLES AND THE LIKE

Field of the invention

The present invention relates to the field of devices and apparatuses for automatically dispensing beverages. In particular, it relates to the field of devices
5 for dispensing beverages from bottles and similar receptacles.

State of the art

Devices and apparatuses adapted to automatically dispense beverages from containers such as bottles and the like are known in the art. Some of these
10 devices and apparatuses are such that the bottles or similar receptacles are kept in upside down position and dispense the beverage contained therein by suitably opening a valve which allows the beverage to fall by gravity into a container conveniently positioned at the mouth of the receptacle itself.

Others provide for the bottles, or similar receptacles, being kept in vertical position, resting on their bottom, and dispense the beverage by means of two tubes
15 introduced into the bottle through the cap of the bottle itself. An inert gas is insufflated into the bottle through one of the aforesaid tubes thus keeping the beverage pressurized. When the dispensing tap associated with a tube is opened, the pressurized gas allows the beverage to be dispensed through the other tube.
20 Devices and apparatuses of this second type are particularly suitable in all those cases, such as for example in the case of wine, in which the beverage contained in the bottle would suffer a decline of its organoleptic quality due to the upside down position of the bottle itself.

However, the devices and apparatuses from the state of the art have drawbacks and limitations which prevent the distribution and a more widespread use thereof.
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In the case of devices adapted to dispense beverages from containers kept in vertical or standing position, one of the most common problems relates to the level of cleanliness of the dispensing tube, which is often insufficient to ensure the complete suppression of the problem related to possible beverage residues in said
30 tube when subsequently dispensing.

Patent number IT1352873 describes an apparatus for dispensing beverages from containers kept in a vertical or standing position, comprising a tapping unit

consisting of a main body comprising a solenoid valve and a tap adapted to engage with the neck of the bottle from which the beverage is to be tapped by means of a conical mouth. A first conduit adapted to allow the inert gas to enter into the bottle, and a second conduit in which the tapped beverage flows and is
5 connected to the dispensing spout, are inside the tap. Said second conduit has a chamber closed by the plunger of the solenoid valve and a branch connected to the inert gas circuit.

During operation, the pressurized gas contained in the bottle will push the liquid through said second conduit and said chamber up to the dispensing spout where it
10 will be collected by the user.

Once the preset quantity of liquid has been tapped, the solenoid valve closes and, after a short time span required to allow the liquid remaining in said second conduit to flow downstream of said branch, a gas jet is blown through said branch, which allows all the remaining liquid drops to be completely eliminated in said
15 second conduit and in the spout.

This embodiment requires the presence of two separate circuits for insufflating the gas, one of which intended to dispense the beverage and the other one intended to emit the jet for cleaning the dispensing tube once the dispensing itself has been occurred. Said two separate circuits have different pressures and thus comprise
20 two various devices for adjusting the gas pressure. This construction involves a certain constructional complexity which is costly and subject to gas leakages if not appropriately subjected to preventive maintenance and checking.

Moreover, said construction requires that, during dispensing, the beverage travels within the described chamber, which chamber is not involved by the cleaning jet
25 and, in the case of beverages coming up against organoleptic degeneration such as wine, may cause problems for the subsequent dispensing operations.

Therefore, making a dispensing unit available for beverage dispensing devices is desirable, which should overcome the described drawbacks while allowing the construction to be simplified by introducing a single gas insufflation circuit
30 characterized in that it uses two valves and a single reducer, thereby decreasing the complexity and cost of the construction as well as the incidence of gas leakages.

Brief description of the drawings

Fig. 1: Sectional view of the device according to the present invention.

Summary of the invention

The present invention relates to a device for dispensing beverages from receptacles such as bottles and the like, characterized by a dispensing unit comprising a tap adapted to clean all the zones involved in the circulation of the beverage, while limiting the consumption of inert gas required for this operation by employing two separate circuits for managing the beverage dispensing and for managing the inert gas emission.

Detailed description of the invention

With reference to the accompanying drawings, the device according to the present invention comprises a tap unit 10, adapted to engage the opening of a bottle or similar receptacle for beverages, and to adjust the discharge therefrom of the beverage contained therein. Said tap unit 10 comprises a first circuit associated with the beverage dispensing and a second circuit associated with the inert gas insufflation, each of said circuits being characterized in that it comprises a solenoid valve.

In greater detail, said tap unit 10 comprises an element 11, preferably truncated conical in shape, adapted to engage the opening of the receptacle from which the beverage is to be tapped, a first circuit associated with the beverage dispensing and a second circuit associated with the inert gas insufflation. Said first circuit in turn comprises: a first channel 12 which crosses said element 11 and is adapted to withdraw the beverage to be dispensed from said receptacle; a first solenoid valve 13, associated with one end of said first channel 12 and with a second channel 14 adapted to dispense the beverage. Said second circuit in turn comprises: a third channel 15, which also crosses said element 11 and is adapted to conduct the inert gas towards the interior of the receptacle containing the beverage to be dispensed; a second solenoid valve 16, associated with one end of said third channel 15 and with a fourth channel 17, associated with external means for dispensing inert gas to said tap unit; a fifth channel 18 associated with both said solenoid valves 13, 16 and connected to said second solenoid valve 16 by pressure reducing means 20.

During regular operation, inserting the bottle so as to engage the opening thereof with said element 11 enables the inert gas to flow from said dispensing means towards the receptacle of the beverage to be dispensed.

5 The inert gas enters into the receptacle causing the discharge of the beverage from the receptacle, which first fills said first channel 12 up to said first solenoid valve 13 and then, when said first solenoid valve 13 opens, is dispensed into the user's cup through the second channel 14.

Once the dispensing step has been completed by closing said first solenoid valve 13, said solenoid valve 16, through said second circuit, allows said second
10 channel 14 to be cleaned: the first solenoid valve 13 switches its status thus stopping the beverage dispensing by closing the first channel 12, which is thus disconnected from the second dispensing channel 14. In this step, the first solenoid valve 13 closes the first channel 12 by means of a specific membrane 19 of the so-called "total separation" type, which contacts the opening of said first
15 channel 12, associated with said solenoid valve 13.

Thereby, an inert gas jet is directed towards the dispensing spout through said pressure reducing means 20, said fifth channel 18 and said second channel 14 having a low pressure (e.g. by 100 times) as compared to the pressure used for dispensing the beverage. This low pressure jet is more than enough to perfectly
20 clean the beverage dispensing channels and all the parts involved by the beverage travel, while avoiding an extra consumption of inert gas.

In a preferred embodiment of the present invention, the pressure of the inert gas employed is lowered from 0.16 bars (employed for dispensing the beverage) to 0.0016 bar (employed in the step of cleaning the dispensing channels).

25 Moreover, said pressure reducing means 20 preferably comprise a conduit of suitable diameter, adapted to abate the pressure value of the travelling gas to the value desired.

CLAIMS

1. A device for dispensing beverages from receptacles comprising a tap unit (10) adapted to engage with the opening of a bottle or similar receptacle for beverages and to adjust, by means of an outlet channel, the discharge of the beverage contained in said receptacle by insufflating gas, said tap comprising a first circuit associated with beverage delivery and a second circuit associated with inert gas insufflation, both associated in turn with an element (11) adapted to engage the opening of the receptacle from which the beverage is tapped, characterized in that said first circuit is associated with a first solenoid valve and said second circuit is associated with a second solenoid valve and with pressure reducing means.
2. A device according to claim 1, wherein said first circuit comprises a first channel (12) which crosses said element (11) and is adapted to withdraw the beverage to be dispensed from said receptacle; a first solenoid valve (13), associated with one end of said first channel (12) and with a second channel (14) adapted to dispense the beverage.
3. A device according to claims 1-2, wherein said second circuit comprises: a third channel (15), which crosses said element (11) and is adapted to conduct inert gas towards the interior of the receptacle containing the beverage to be dispensed; a second solenoid valve (16), associated with one end of said third channel (15) and with a fourth channel (17), associated with external means for dispensing inert gas to said tap unit; a fifth channel (18) associated with both said solenoid valves (13, 16) and connected to said second solenoid valve (16) by means of said pressure reducing means (20).
4. A device according to claims 1-3, wherein said pressure reducing means (20) comprise a conduit of appropriate diameter adapted to reduce the pressure value of the travelling gas to the value desired.
5. A device according to claim 1, wherein said pressure reducing means (20) are adapted to reduce the pressure by a factor of 100.
6. A device according to claims 1-5, wherein said first solenoid valve (13) comprises a membrane (19) of the so-called "total separation" type,

adapted to close the opening of said first channel (12) and associated with said first solenoid valve (13).

7. A device according to claims 1-6, wherein said element (11) adapted to engage the opening of the receptacle from which the beverage is tapped, is cone frustum shaped.

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