Title: BEVERAGE DISPENSING SYSTEM FOR DISPENSING A CARBONATED BEVERAGE AND A METHOD OF DISPENSING A CARBONATED BEVERAGE

(57) Abstract: A beverage dispensing system comprising a tapping rod (10). The tapping rod (10) comprises a first slender part (10a), a second slender part (10b) and a third slender part (10c). The first slender part (10a) extends vertically from the bar counter (12) to above the bar counter and includes a first guide tube. The second slender part (10b) extends parallel with the bar counter (12) and includes a second guide tube interconnected with the first guide tube. The third slender part (10c) extends perpendicular to the bar counter (12) towards the operator side and being connected to a tapping cock (14). The third slender part (10c) comprises a fixed part (28) and a horizontally openable cover (18) facing the fixed part. The fixed part (28) and/or the cover (18) comprises catching elements (30) for clamping a tapping line (24). The cover (18) defines an open state in which the catching elements (30) are accessible, and a closed state in which the catching elements (30) are concealed.
BEVERAGE DISPENSING SYSTEM FOR DISPENSING A CARBONATED BEVERAGE AND A METHOD OF DISPENSING A CARBONATED BEVERAGE

The present invention relates to a beverage dispensing system for dispensing a carbonated beverage and a method of dispensing a carbonated beverage.

Introduction

The present applicant is the producer of beverage dispensing systems in which a collapsible beverage container is positioned in a pressure chamber. The collapsible beverage container comprises e.g. a bottle, pack or bag of a flexible material, typically polymeric, which is filled with a carbonated beverage, typically beer, and sealed off by means of a cap. The beverage container has an integrated tapping line attached to the cap. The beverage container is placed in a pressure chamber of the beverage dispensing system and the tapping line is led outside the pressure chamber. During dispensing of the beverage, a pressure is applied to the exterior of the flexible container and the beverage container crumples and collapses when exposed to an elevated pressure as the beverage is forced out of the beverage container via the dispensing line.

The dispensing of the beverage is controlled via a tapping cock that is mounted on a hollow tapping rod. In operation, the dispensing line extends through the tapping rod into the tapping cock. Typically, the tapping rod extends vertically from the bar counter to an elevated position corresponding to the shoulder or chest height of an average person, and further towards the operator in order for the tapping cock to be positioned above a drip tray. Typical tapping rods comprise a vertical cylindrical part extending from the bar counter and other expressions that are considered synonymous with tapping rod are tapping column, rod, stanchion, tower or similar expressions which originate from the shape of the tapping rod. The tapping cock in turn includes a tapping handle, a tapping valve and a spout. The tapping valve and the spout is typically integrated with the tapping line. The tapping valve may be formed by a valve element, which is acted on by the tapping cock for opening and closing the valve and thereby respectively allow and prevent beverage flow through the tapping valve.

Preferably, the tapping valve and spout form an integral part of the tapping line and is thrown away after use together with the tapping line and the collapsed beverage container. Thus, the tapping cock only arrests the tapping valve and includes means,
such as a handle, for opening and closing the tapping valve. In this way, a hygienic beverage dispensing system is achieved in that the tapping valve is replaced together with the beverage container. In order to dispense beverage, the handle is swung
towards the user, which causes a linking mechanism in the tapping cock to act on the valve placed in the tapping cock. Thus, any contact between the beverage and the tapping rod/cock is eliminated. The tapping handle is the most commonly used actuator for tapping cocks, however, other means may be used, including electrical means such as electrical actuators.

When a new beverage container has been placed in the pressure chamber, the dispensing line is led through the tapping rod into the tapping cock, and the tapping line as well as the tapping valve are properly retained inside the tapping cock. The tapping rod, as well as the pressure chamber, may be provided with active cooling in order to allow the beverage to remain fresh for weeks or even months.

Several prior art technologies exist relating to beverage dispensing systems as described above including a disposable tapping line located within a tapping rod. Some examples of the above technologies include WO 07/019848, WO 07/019849, WO 07/019850, WO 07/019851 and WO 07/019853, all of the applicant company, which disclose a dispensing line connected with an outlet of the beverage container and extending from the outlet through an opening in the lid of a pressure chamber to a dispensing tap. The dispensing of beverage is carried out by providing the predetermined pressure to the pressure chamber and as the dispensing line is being opened at the dispensing tap, the pressure will apply a pressure to the exterior of the beverage container, which will start to collapse, whereby the beverage will be forced out of the beverage container into the dispensing line and out at the dispensing tap without the beverage per se being supplied with or in contact with any gas during the dispensing.

Further examples of the above technologies include WO 01/92142, WO 01/92144 and WO 01/92145 which relate to a tapping device for beverage comprising a cooling device and a tapping rod with a tapping cock. The tapping rod comprises channels, which are in fluid communication with each other adjacent the tapping cock. The tapping line extends through one of the channels and is coupled at one end with a container for beverage and at the other end can cooperate with the tapping cock.

As the tapping line must be led through the tapping rod, and the tapping line must be easily removable from the tapping rod, the tapping rod and the channels should be pipe shaped, slender and exhibiting as few bends as possible, and the bends must necessarily be soft or blunt. Sharp bends may not be used or should at least be avoided
since they will cause the tapping line to get stuck. Still, even using soft or blunt bends, the use of tapping rods having more than one bend have the drawbacks of risking that the tapping line gets stuck in the tapping rod.

This problem may be remedied by allowing the tapping rod to be openable and thus avoid guide channels/tubes and the guiding of the tapping line altogether. One notable example of such technology is in the international application WO 2008/1251 13, of the applicant company, which discloses a beverage dispensing system having a tapping rod that is formed by two housing parts, which are pilotable in relation to each other. The housing parts allow, when in the open position, access to a recess for positioning a dispensing line into the housing and in the recess and allow the recess to receive and retain the dispensing line. The recess is concealed when the first housing part and second housing part are in the closed position.

However, allowing the tapping rod to open completely also has some drawbacks. First of all, the structural stability of the tapping rod will be decreased due to it being openable and consequently it will be more difficult to place plates including product branding, advertisements, commercial messages etc. on the rod itself. The space available for such plates will be limited and they will apply a structural load to the rod, which it may not be able to hold.

Secondly, although in principle an openable tapping rod will allow an infinite amount of bends and an infinite amount of tapping cocks since there is no risk of the tapping line getting stuck, tapping rods having more than one bend and one tapping cock will be very difficult to implement in practice. So-called multi-faucet towers will be very difficult to implement. Thus, in practice, it is still normally only possible to include a single tapping cock on the tapping rod having one bend and thus the advantage of the openable tapping rod is lost at least partially.

The objects according to the present invention are thus twofold, firstly how to provide mounting points for advertisement plates, and secondly how to allow the installation of a tapping line in a tapping rod having multiple bends.

The above objects together with numerous other objects, features and advantages, which will be evident from the below description of the present invention, are according to a first aspect of the present invention, obtained by a beverage dispensing system for
dispensing a carbonated beverage, the beverage dispensing system comprising a pressure chamber for accommodating a collapsible beverage container, and, a bar counter defining a customer side, an oppositely located operator side extending substantially parallel with the customer side, and a substantially horizontal surface extending between the customer side and the operator side, the beverage dispensing system further comprising a tapping rod, the tapping rod comprising a tapping line, said tapping rod further comprising:

a first slender part defining a first end and an opposite second end, the first slender part extending substantially vertically from the first end at the substantially horizontal surface of the bar counter to the second end located above the substantially horizontal surface of the bar counter, the first slender part further including a first guide tube for accommodating the tapping line between the first end and the second end,

a second slender part defining a third end connected to the second end of the first slender part and an opposite fourth end, the second slender part extending from the third end to the fourth end substantially parallel with the customer side and the operator side of the bar counter, the second slender part further including a second guide tube interconnected with the first guide tube for accommodating the tapping line between the third end and the fourth end, and

a third slender part defining a fifth end connected to the fourth end of the second slender part and an opposite sixth end, the sixth end of the third slender part being connected to a tapping cock for accommodating a valve element of the tapping line, the third slender part extending from the fifth end to the sixth end substantially perpendicular to the customer side and the operator side of the bar counter towards the operator side of the bar counter and comprises a fixed part and a horizontally openable cover facing the fixed part, the fixed part and/or the horizontally openable cover comprising one or more catching elements for clamping the tapping line between the fifth end and the sixth end, the horizontally openable cover defining an open state in which the catching elements being accessible between the fifth end and the sixth end, and a closed state in which the catching elements being concealed.

The pressure chamber should be substantially pressure-tight and connected to a compressor or the like for being able to elevate the pressure inside the pressure chamber. The collapsible beverage container, preferably made of a polymeric material, is positioned inside the pressure chamber, preferably with a tight fit. The pressure chamber is closed off by a pressure-tight lid and the dispensing line is allowed to extend outside the pressure chamber. The pressure chamber is normally located below the bar
counter and may be chilled by e.g. being in a refrigerator or having the tapping line passing a pass-through cooler. Alternatively, the pressure chamber may be located e.g. in a cellar below the establishment/bar counter.

The bar counter thus forms a horizontal surface for accommodating beverage glasses etc. The bar counter typically extends along a section of the bar or restaurant or similar establishments and may in many cases separate the publicly accessible part of the establishment at the customer side and the employee only area at the operator side. However, the bar counter may also be formed by a mobile device having wheels, a refrigerator for accommodating the pressure chamber, a compressor and a horizontal surface above the refrigerator. The customer side and the operator side bar counter are typically linear and parallel such that the bar counter resembles a cube or cuboid; however, curved bar counters and even circular bar counters are equally feasible. Further, the horizontal surface is preferably mostly horizontal for accommodating beer glasses but may include protrusions and indentation in the form of drip trays etc.

The tapping rod is hollow and extends from the horizontal surface. The first end is open and typically accessible from below the horizontal surface from the operator side. The operator inserts the dispensing line (tapping line) from the nearby pressure chamber into the opening of the first guide tube at the first end of the first slender part of the tapping rod, which extends vertically to the second end. The junction between the second end and the third end of the second slender part of the tapping rod forms a transition of the tapping rod from pure vertical to also extend in the horizontal direction, parallel with the customer side, to the fourth end. The tapping line is guided from the first guide tube to the second guide tube, which in practice may constitute a single bent guide tube.

The first slender part and the second slender part thereby form fastening points for place plates inducing product branding, advertisements, commercial messages etc. that may extend in the space defined between the first and second slender parts and the horizontal surface. Such plates will thus be fastened to the very rigid first and second slender parts and as the plates extend parallel with the customer side, they will allow for a large surface to be visible to the customer.

The fourth end of the second slender part also defines the end of the guide tube and the tapping line is consequently not guided into the third slender part but will in practice be
stopped at the junction between the second slender part extending parallel to the customer and operator sides, and the third slender part running perpendicular to the second slender part and towards the operator side of the bar counter. It is not suitable to continue the guide tube through a second bend into the third slender part due to the risk of the tapping line getting stuck and due to the necessity in such case to make the transition from the second slender part to the third slender part very soft.

By opening the openable cover, the tapping line may be retrieved at the end of the guide tube at the transition between the second slender part and the third slender part. By hand, the tapping line is then accommodated in catching element, e.g. scores, ridges, clamps or the like on the fixed part of the third slender part of the openable cover of the third slender parts, or both. The tapping valve of the tapping line is fastened inside the tapping cock such that the valve element may be opened and closed by the tapping cock. Then the openable cover is closed and the beverage dispensing system is ready for operation.

The above beverage dispensing system is thus using a guide tube the first part of the distance between the first end of the tapping rod and the tapping cock, whereas the remaining part of the tapping rod is openable. This allows a very stable base of the tapping rod and at the same time allowing a very high flexibility when it comes to the appearance of the tapping rod. Thus, the presently claimed invention has the advantage of allowing tapping rods to have multiple bends and sharp bends which would be unfeasible using any of the prior art technologies. A further advantage is that complex multi faucet towers will be feasible. Yet, a further advantage is that the installation and de installation of the tapping line in the tapping rod and in the tapping cock will be very ergonomic.

According to a further embodiment of the first aspect, the openable cover is spring-loaded towards the closed state. In this way, the cover will automatically close ensuring that the dispensing line is protected and avoiding that dirt may enter the tapping rod.

According to a further embodiment of the first aspect, the distance between the first end and the second end is 200-600mm, preferably 300-500mm, and/or, the distance between the third end and the fourth end is 50-300mm, preferably 100-200mm, and/or, the distance between the fifth end and the sixth end is 50-400mm, preferably 100-300mm. The above distances are appropriate in order to achieve a sufficiently high
tapping rod (first end to second end), having a sufficiently large area for the advertisement plate (third end to fourth end) and allowing the placement of a drip tray etc. below the spout (fifth end to sixth end).

5 According to a further embodiment of the first aspect, the second slender part forms a smooth transition from vertical to horizontal, and/or, wherein the fourth end of the second slender part is connected to the fifth end of the third slender part in a substantially right angle. This will provide a very rigid tapping line having a large area available for the advertisement plate.

10 According to a further embodiment of the first aspect, the tapping rod further comprises a plate connected to the first slender part and the second slender part and optionally to the substantially horizontal surface, the plate preferably including an advertisement, e.g. a commercial message for promoting beverage sale, and optionally including light and/or sound effects. The plate has been described as an option above. By including a waterproof electrical installation in the tapping rod, light and sound effects may be provided.

According to a further embodiment of the first aspect, the plate is removable/exchangeable. In this way, the brand name of the beverage may be changed when the corresponding beverage container is changed. Rails may be used in order to allow removability while maintaining a stable fastening of the plate to the rod. Other means, such as clamps, screws, etc., are also feasible.

25 According to a further embodiment of the first aspect, the fixed part of the third slender part comprises:

- a bottom wall facing the substantially horizontal surface and extending between the fifth end and the sixth end,
- a top wall facing away from the substantially horizontal surface and extending between the fifth end and the sixth end, and
- a fixed sidewall interconnecting the bottom wall and the top wall and being located opposite the openable cover and extending between the fifth end and the sixth end. The openable cover preferably swings open in the horizontal direction. This allows for a very ergonomic access to the tapping rod and an easy fastening of the tapping line to the tapping rod. Further, a sideways opening of the cover with a fixed top and bottom
allows for a more structurally stable construction of the third slender part of the tapping rod.

According to a further embodiment of the first aspect, the first slender part further includes a first coolant tube for accommodating a cooling fluid between the first end and the second end, and a second cooling tube interconnected with the first cooling tube for accommodating a cooling fluid between the third end and the fourth end. Cooling of the tapping rod and tapping line avoids that the beverage inside the tapping rod will be foul. The cooling may be provided by allowing a stream of chilled air circulate in the guide tube and the coolant tube. The air may be provided from a refrigerator or cellar, preferably being the same in which the pressure chamber is stored, if applicable.

According to a further embodiment of the first aspect, the horizontally openable cover is hingedly connected at a hinging point at or near the fifth end and provided with a locking member at the sixth end. The openable cover thus swings open in a direction away from the operator allowing the operator an unrestricted access to the tapping.

According to a further embodiment of the first aspect, the hinging point is located opposite the second slender part. In this way, the openable cover swings open in a direction away from the tapping cock allowing easy access to the tapping cock.

According to a further embodiment of the first aspect, the tapping cock comprises a tapping handle extending vertically from a position directly above the tapping cock and being connected to the tapping cock opposite the horizontally openable cover. In this way, the tapping handle and the connection to the tapping cock cannot block the opening of the openable cover, as the connection of the handle to the tapping cock is located opposite the operable cover. Preferably, the tapping handle extends directly above the tapping cock in order to establish an intuitive device in which the handle is located at the expected and most convenient position.

According to a further embodiment of the first aspect, the tapping rod is made of a metal, such as aluminum, copper or steel. This way it will be very durable, stable and qualitative.
According to a further embodiment of the first aspect, the system further comprises the beverage container including a carbonated beverage and further includes the tapping line extending between the beverage container and the tapping cock via the tapping rod.

According to a further embodiment of the first aspect, the tapping rod further comprises:

- a fourth slender part defining a seventh end connected to the second end of the first slender part and an opposite eighth end, the second slender part extending from the seventh end to the eighth end substantially parallel with the customer side and the operator side of the bar counter and in an opposite direction relative to the second slender part, the first slender part including a third guide tube for accommodating a further tapping line between the first end and the seventh end, the second slender part including a fourth guide tube interconnected with the third guide tube for accommodating the further tapping line between the seventh end and the eighth end, and
- a fifth slender part defining a ninth end connected to the eighth end of the fourth slender part and an opposite tenth end, the tenth end of the fifth slender part being connected to a further tapping cock for accommodating a further valve element of the further tapping line, the fifth slender part extending from the ninth end to the tenth end substantially perpendicular to the customer side and the operator side of the bar counter towards the operator side of the bar counter and comprises a further fixed part and a further horizontally openable cover facing the further fixed part, the further fixed part and/or the further horizontally openable cover comprising one or more further catching elements for clamping the further tapping line between the ninth end and the tenth end, the further horizontally openable cover defining an open state in which the further catching elements being accessible between the ninth end and the tenth end, and a closed state in which the further catching elements being concealed.

The above system is a particularly advantageous tapping tower having two taps for being able to dispense two types of beverage. It is constituted by a single first slender part, which is connected to a number of second slender parts and corresponding number of third slender parts and tapping cocks. The number is considered to be at least two but of course, even higher numbers are feasible such as three, four or five or more.

The above objects together with numerous other objects, features and advantages, which will be evident from the below description of the present invention, are according to a second aspect of the present invention, obtained by a method of dispensing a carbonated beverage, the method comprising providing beverage dispensing system for
dispensing a carbonated beverage, the beverage dispensing system comprising a pressure chamber, and, a bar counter defining a customer side, an oppositely located operator side extending substantially parallel with the customer side, and a substantially horizontal surface extending between the customer side and the operator side, the beverage dispensing system further comprising a tapping rod, the tapping rod comprising:

a first slender part defining a first end and an opposite second end, the first slender part extending substantially vertically from the first end at the substantially horizontal surface of the bar counter to the second end located above the substantially horizontal surface of the bar counter, the first slender part further including a first guide tube,

a second slender part defining a third end connected to the second end of the first slender part and an opposite fourth end, the second slender part extending from the third end to the fourth end substantially parallel with the customer side and the operator side of the bar counter, the second slender part further including a second guide tube interconnected with the first guide tube, and

a third slender part defining a fifth end connected to the fourth end of the second slender part and an opposite sixth end, the sixth end of the third slender part being connected to a tapping cock, the third slender part extending from the fifth end to the sixth end substantially perpendicular to the customer side and the operator side of the bar counter towards the operator side of the bar counter and comprises a fixed part and a horizontally openable cover facing the fixed part, the fixed part and/or the horizontally openable cover comprising one or more catching elements, the method further comprising the steps of:

installing a collapsible beverage container in the pressure chamber, the beverage container including the carbonated beverage,

guiding a tapping line of the collapsible beverage container within the first guide tube between the first end and the second end,

guiding the tapping line within the second guide tube between the third end and the fourth end,

opening the horizontally openable cover and clamping the tapping line between the fifth end and the sixth end using the catching elements,

closing the horizontally openable cover, and

operating the tapping cock for dispensing beverage.
The above method may preferably be used together with any of the above-mentioned systems, including all embodiments. According to the method, the tapping line is guided the distance inside the tapping rod between the pressure chamber and the junction between the second slender part and the third slender part, whereas the remaining distance within the third slender part 10c to the tapping cock, i.e. the remaining part of the distance, the tapping line is clamped. This allows a secure guiding and fastening of the tapping line.

**Brief description of the drawings**

FIG. 1A is a tapping rod including three slender parts according to the present invention. FIG. 1B is illustrating the tapping rod when the openable cover has been opened. FIG. 1C is illustrating the tapping rod when the tapping line has been introduced. FIG. 1D is illustrating the clamping of the tapping line in the openable cover. FIG. 1E is illustrating the closing of the openable cover of the tapping rod. FIG. 1F is illustrating the tapping line when clamped and openable cover when closed. FIG. 2 is a tapping rod having a plate for displaying commercial messages. FIG. 3 is a tapping rod having twin taps for allowing dispensing of two different beers. FIG. 4 is a beverage dispensing system according to the present invention.

**Detailed description of the drawings**

FIG. 1A shows a tapping rod 10 according to the present invention. The tapping rod comprises a first slender part 10a, a second slender part 10b and a third slender part 10c. The first slender part 10a extends substantially vertically from a bar counter 12. The bar counter 12 defines a horizontal surface delimited by an operator side and a customer side opposite the operator side. The second slender part 10b extends from the first slender part 10a in a direction substantially parallel with the bar counter, i.e. parallel with the customer side and the operator side of the bar counter. The third slender part 10c extends from the second slender part 10b substantially perpendicular to the customer side and the operator side of the bar counter 12 towards the operator side of the bar counter.

The third slender part 10c comprises a tapping cock 14 mounted opposite the second slender part 10b. The tapping cock 14 comprises a tapping handle 16 for controlling the dispensing of beverage. The third slender part 10c further comprises an openable cover
18, which is presently showed in its closed state. The operable cover 18 is hinged adjacent the second slender part 10b and extends to the tapping cock 14 where it is locked in place by a click mechanism 22. The hinge 20 is preferably spring loaded. A tapping line 24 including a tapping valve 26 is fed from below the tapping rod 10 into the first slender part 10a as shown by the arrow.

FIG. 1B shows the tapping rod 10 when the operable cover 18 has been opened by releasing the click mechanism 22. The operable cover swings outwardly in a horizontal direction about the hinge 20 and effectively splits the third slender part 10c into two parts: the operable cover 18 and a fixed part 28. The tapping handle 16 is fastened to the fixed part 28. In this way, the interior of the third slender part 10c, the tapping cock 14 and a portion of the second slender part 10b is exposed.

The tapping line 24 together with the tapping valve 26 is fed through the first slender part 10a and the second slender part 10b and is accessible through the operable cover 18. The first slender part 10a and the second slender part 10b may each comprise a guide tube (not shown) for accommodating and guiding the tapping line 24 together with the tapping valve 26 through the first slender part 10a and the second slender part 10b.

FIG. 1C shows the tapping rod 10 when the tapping line 24 together with the tapping valve 26 has been introduced and guided through the first slender part 10a and the second slender part 10b. The tapping line 24 and the tapping valve 26 thus appear at the junction between the second slender part 10b and the third slender part 10c and are accessible though the operable cover 18. Cooling of the tapping rod may be provided, e.g. by a cooling fluid tube or by simply letting cold air into the tapping rod. The guide tube for the tapping line may also be used for exchanging the air in the tapping rod, e.g. by providing cool air or sucking out warmer air.

The tapping line 24 is received at the junction between the second slender part 10b and the third slender part 10c by the operator and is placed into the tapping cock 14 as shown by the arrow. Further, the operable cover 18 comprises inwardly facing catching elements 30 in which the tapping line 24 may be clamped in order to securely fixate the tapping line 24 as shown by the arrows. The fixed part 28 of the third slender part 10 comprises holding members 32 located opposite the catching elements 30. Alternatively, the fixed part 28 of the third slender part 10c may comprise the catching elements 30 and the operable cover 18 may comprise the holding members 32.
FIG. 1D shows the clamping of the tapping line 24 in the openable cover 18. The clamping is effectuated by forcing the tapping line 26 between the flexible arms of the catching elements 30. In the present embodiment, two catching elements 30 and corresponding holding members 32 are used, however, other numbers greater than zero, such as one, three etc. are also feasible.

FIG. 1E shows the closing of the openable cover 18 of the tapping rod 10. When the openable cover 18 is closed as shown by the arrow and locked in place, the tapping line 24 is securely fixated in the third slender part 10c and the tapping valve 26 is securely fixed in the tapping cock 14. The tapping rod 10 is now ready for dispensing which is performed by operating the tapping handle 16. The tapping handle 16 is connected to the tapping cock 14, which in turn acts on the tapping valve 26 for opening and closing the tapping valve, allowing and preventing beverage dispensing, respectively.

FIG. 1F shows the tapping line 24 when clamped and the openable cover 18 when closed. In addition to being clamped by the catching elements 30, the tapping line 24 is held on the opposite side by the holding members 32, which are adapted to abut the tapping line and prevent the tapping line 24 from escaping the catching elements 30 when the openable cover 18 is closed. The holding members 32 have an arched shape corresponding to the tapping line 24 and push the tapping line 24 into the corresponding catching elements 30.

FIG. 2 shows a tapping rod having a plate 34 e.g. for displaying a commercial message to the customer. The plate 34 is securely fixated to the first slender part 10a and the second slender part 10b and optionally also to the horizontal surface of the bar counter 12. The plate 34 will be visible to the customer since it extends along the customer side of the bar counter, and it will be securely mounted since it is fastened to the tapping rod on at least two of its four sides. Optionally and preferably the plate 34 is also secured to the bar counter providing support on three sides. Optionally, the plate 34 is removable, e.g. by the provision of rails or other suitable fastening members. The plate may be connected to or provided with electricity in order to allow light and sound effects.

FIG. 3 shows an alternative tapping rod 10 having two tapping cocks 14' 14" each having a tapping handle 16' 16". The tapping rod 10 comprises a first slender part 10a' which is extending vertically from a bar counter 12 similar to the previous embodiment.
Differently from the previous embodiment, the present alternative tapping rod 10’ comprises two second slender parts 10b’ 10b” which extend in opposite directions, and two third slender parts 10c’ 10c” which extend towards the operator.

The third slender parts 10c’ are each being connected to a tapping cock 14’ 14” and are each comprising an openable cover 18’ 18”. Two separate guide tubes (not shown) may be provided each leading to one of the tapping cocks 14’ 14”. Two tapping lines 24’ 24” each having a tapping valve 26’ 26” are inserted into the respective guide tube (not shown) and installed into the respective third slender part 10c’ 10c” and tapping cock 14’ 14” as described above. In this way, the same tapping rod 10’ may be used for dispensing two different beverages. It is contemplated that more than two tapping cocks may be feasible. Further, plates as described above may be fitted to the present tapping rod 10’ in a similar fashion as described above.

FIG. 4 is a beverage dispensing system 36 according to the present invention. The beverage dispensing system 36 comprises a bar counter in the form of a refrigerator including a pressurization system 38 and a cooling system 40. The bar counter 12 also includes a pressure chamber 42. The pressure chamber 42 is openable and includes a replaceable and collapsible beverage container 44. A spare beverage container 44’ is optionally provided. The beverage container 44 has a tapping line 24 which is led through the tapping rod 10’ which is mounted on the horizontal surface of the bar counter 12 constituting the upper horizontal surface of the refrigerator. The bar counter defines a customer side 12a, an opposite operator side 12b and the horizontal surface extending there between. The third slender part 10c is as discussed above oriented towards the operator side 12b in order to provide easy access for the operator to the tapping cock 14 and the handle 16.

The above embodiment is to be construed as an example only as the refrigerator must not necessarily be part of the bar counter as the pressure chamber may be located at a distant location e.g. in the cellar. Further, a refrigerator must not always be present as other cooling means may be applied, such as a pass-through cooler.

Although the above description has in greater details described specific and presently preferred embodiments of the beverage dispensing system, assembly, tapping rod and related methods according to the present invention, alternative materials and designs apart from the above-described, different embodiments, as well as combinations of the
above embodiments, are contemplated and covered in accordance with the appended claims.

Any such embodiments readily deducible by a skilful individual are considered to be encompassed by the appended claims.
Reference numerals with reference to the figures

10. Tapping rod
5 10a. First slender part
10b. Second slender part
10c. Third slender part
12. Bar counter
12a. Customer side
10 12b. Operator side
14. Tapping cock
16. Tapping handle
18. Openable cover
20. Hinge
15 22. Click mechanism
24. Tapping line
26. Tapping valve
28. Fixed part
30. Catching element
20 32. Holding member
34. Plate
36. Beverage dispensing system
38. Refrigerator
40. Cooling system
25 42. Pressure chamber
44. Beverage container
CLAIMS

1. A beverage dispensing system for dispensing a carbonated beverage, said beverage dispensing system comprising a pressure chamber for accommodating a collapsible beverage container, and, a bar counter defining a customer side, an oppositely located operator side extending substantially parallel with said customer side, and a substantially horizontal surface extending between said customer side and said operator side, said beverage dispensing system further comprising a tapping rod, said tapping rod comprising a tapping line, said tapping rod further comprising:

   a first slender part defining a first end and an opposite second end, said first slender part extending substantially vertically from said first end at said substantially horizontal surface of said bar counter to said second end located above said substantially horizontal surface of said bar counter, said first slender part further including a first guide tube for accommodating said tapping line between said first end and said second end,

   a second slender part defining a third end connected to said second end of said first slender part and an opposite fourth end, said second slender part extending from said third end to said fourth end substantially parallel with said customer side and said operator side of said bar counter, said second slender part further including a second guide tube interconnected with said first guide tube for accommodating said tapping line between said third end and said fourth end, and

   a third slender part defining a fifth end connected to said fourth end of said second slender part and an opposite sixth end, said sixth end of said third slender part being connected to a tapping cock for accommodating a valve element of said tapping line, said third slender part extending from said fifth end to said sixth end substantially perpendicular to said customer side and said operator side of said bar counter towards said operator side of said bar counter and comprises a fixed part and a horizontally openable cover facing said fixed part, said fixed part and/or said horizontally openable cover comprising one or more catching elements for clamping said tapping line between said fifth end and said sixth end, said horizontally openable cover defining an open state in which said catching elements being accessible between said fifth end and said sixth end, and a closed state in which said catching elements being concealed.

2. The beverage dispensing system according to claim 1, wherein said openable cover is spring-loaded towards said closed state.
3. The beverage dispensing system according to any of the preceding claims, wherein the distance between said first end and said second end is 200-600mm, preferably 300-500mm, and/or, the distance between said third end and said fourth end is 50-300mm, preferably 100-200mm, and/or, the distance between said fifth end and said sixth end is 50-400mm, preferably 100-300mm.

4. The beverage dispensing system according to any of the preceding claims, wherein said second slender part forms a smooth transition from vertical to horizontal, and/or, wherein said fourth end of said second slender part is connected to said fifth end of said third slender part in a substantially right angle.

5. The beverage dispensing system according to any of the preceding claims, wherein said tapping rod further comprises a plate connected to said first slender part and said second slender part and optionally to said substantially horizontal surface, said plate preferably including an advertisement, e.g. a commercial message for promoting beverage sale, and optionally including light and/or sound effects.

6. The beverage dispensing system according to claim 5, wherein said plate is removable/exchangeable.

7. The beverage dispensing system according to any of the preceding claims, wherein said fixed part of said third slender part comprises:
   a bottom wall facing said substantially horizontal surface and extending between said fifth end and said sixth end,
   a top wall facing away from said substantially horizontal surface and extending between said fifth end and said sixth end, and
   a fixed sidewall interconnecting said bottom wall and said top wall and being located opposite said openable cover and extending between said fifth end and said sixth end.

8. The beverage dispensing system according to any of the preceding claims, wherein said first slender part further includes a first coolant tube for accommodating a cooling fluid between said first end and said second end, and a second cooling tube interconnected with said first cooling tube for accommodating a cooling fluid between said third end and said fourth end.
9. The beverage dispensing system according to any of the preceding claims, wherein said horizontally openable cover is hingedly connected at a hinging point at or near said fifth end and provided with a locking member at said sixth end.

10. The beverage dispensing system according to claim 9 wherein said hinging point is located opposite said second slender part.

11. The beverage dispensing system according to any of the preceding claims, wherein said tapping cock comprises a tapping handle extending vertically from a position directly above said tapping cock and being connected to said tapping cock opposite said horizontally openable cover.

12. The beverage dispensing system according to any of the preceding claims, wherein said tapping rod is made of a metal, such as aluminum, copper or steel.

13. A beverage dispensing system according to any of the preceding claims, further comprising said beverage container including a carbonated beverage and further including said tapping line extending between said beverage container and said tapping cock via said tapping rod.

14. The beverage dispensing system according to any of the preceding claims, wherein said tapping rod further comprises:

   a fourth slender part defining a seventh end connected to said second end of said first slender part and an opposite eighth end, said second slender part extending from said seventh end to said eighth end substantially parallel with said customer side and said operator side of said bar counter and in an opposite direction relative to said second slender part, said first slender part including a third guide tube for accommodating a further tapping line between said first end and said seventh end, said second slender part including a fourth guide tube interconnected with said third guide tube for accommodating said further tapping line between said seventh end and said eighth end, and

   a fifth slender part defining a ninth end connected to said eighth end of said fourth slender part and an opposite tenth end, said tenth end of said fifth slender part being connected to a further tapping cock for accommodating a further valve element of said further tapping line, said fifth slender part extending from said ninth end to said tenth end substantially perpendicular to said customer side and said operator side of said bar counter.
side of said bar counter towards said operator side of said bar counter and comprises a further fixed part and a further horizontally openable cover facing said further fixed part, said further fixed part and/or said further horizontally openable cover comprising one or more further catching elements for clamping said further tapping line between said ninth end and said tenth end, said further horizontally openable cover defining an open state in which said further catching elements being accessible between said ninth end and said tenth end, and a closed state in which said further catching elements being concealed.

15. A method of dispensing a carbonated beverage, said method comprising providing beverage dispensing system for dispensing a carbonated beverage, said beverage dispensing system comprising a pressure chamber, and, a bar counter defining a customer side, an oppositely located operator side extending substantially parallel with said customer side, and a substantially horizontal surface extending between said customer side and said operator side, said beverage dispensing system further comprising a tapping rod, said tapping rod comprising:

a first slender part defining a first end and an opposite second end, said first slender part extending substantially vertically from said first end at said substantially horizontal surface of said bar counter to said second end located above said substantially horizontal surface of said bar counter, said first slender part further including a first guide tube,

a second slender part defining a third end connected to said second end of said first slender part and an opposite fourth end, said second slender part extending from said third end to said fourth end substantially parallel with said customer side and said operator side of said bar counter, said second slender part further including a second guide tube interconnected with said first guide tube, and

a third slender part defining a fifth end connected to said fourth end of said second slender part and an opposite sixth end, said sixth end of said third slender part being connected to a tapping cock, said third slender part extending from said fifth end to said sixth end substantially perpendicular to said customer side and said operator side of said bar counter towards said operator side of said bar counter and comprises a fixed part and a horizontally openable cover facing said fixed part, said fixed part and/or said horizontally openable cover comprising one or more catching elements, said method further comprising the steps of:

installing a collapsible beverage container in said pressure chamber, said beverage container including said carbonated beverage,
guiding a tapping line of said collapsible beverage container within said
first guide tube between said first end and said second end,
guiding said tapping line within said second guide tube between said third
end and said fourth end,
opening said horizontally openable cover and clamping said tapping line
between said fifth end and said sixth end using said catching elements,
closing said horizontally openable cover, and
operating said tapping cock for dispensing beverage.
**INTERNATIONAL SEARCH REPORT**

**PCT/EP2018/057451**

### A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal , WPI Data

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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**A**

- **WO 2015/001011 A1** (MICRO MATIC AS [DK])
  - 8 January 2015 (2015-01-08)
  - page 8, line 3 - line 20
  - page 9, line 8 - line 17
  - page 11, line 1 - line 3
  - page 13, line 16 - page 14, line 6
  - figures 1-4, 8-10

  1-15

**A**

- **GB 2 312 201 A** (PRUNTY DANIEL JOHN [IE])
  - 22 October 1997 (1997-10-22)
  - page 4, line 12 - line 25; figure 1

  1-15

**A**

- **EP 2 660 188 A1** (ANHEUSER BUSCH INBEV SA [BE])
  - 6 November 2013 (2013-11-06)
  - paragraph [0027] - paragraph [0028]; figures 3a, 3b, 3c, 3d

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* Further documents are listed in the continuation of Box C.

**X** See patent family annex.

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**Date of the actual completion of the international search**

19 April 2018

**Date of mailing of the international search report**

07/05/2018

Name and mailing address of the ISA:

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
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Fax: (+31-70) 340-3016

Schultz, Tom

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