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(54) **ENDING DEVICE FOR DISPENSING MACHINES**

BEENDIGUNGSVORRICHTUNG FÜR AUSGABEAUTOMATEN

DISPOSITIF DE FIN POUR MACHINES DE DISTRIBUTION

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EP 3 551 572 B1

Description

Technical Field

[0001] The present invention relates to an ending device for dispensing machines, in particular for machines dispensing beverages or other liquid substances.

Background Art

[0002] Machines for dispensing beverages or other liquid substances to be consumed, known to the state of the art, are usually supplied with one or more ending devices adapted to control the mixing and dispensing of the beverage to be supplied to the consumer. An ending device according to the preamble of independent claim 1 is disclosed in US 2001/0048958 A1.

[0003] Usually, the ending devices have a regulation assembly comprising a first regulation element, e.g., a solenoid valve, and an inlet nozzle associated with it from which it receives water in a controlled manner.

[0004] The device, furthermore, comprises a mixing body connected to a second regulation element, e.g. a peristaltic pump, for the controlled withdrawal from the container of concentrated juice or other substances useful for obtaining the finished beverage.

[0005] The mixing body is connected to the inlet nozzle in order to receive water from the latter and mix it with the concentrated juice to obtain the drink to be consumed.

[0006] The latter is delivered via a dispensing element connected to the mixing body. A delicate aspect tied to known devices concerns the connection of the inlet nozzle to the first regulation element.

[0007] A drawback of known devices, in fact, is tied to the replacement and/or maintenance operations of the inlet nozzle.

[0008] When these operations become necessary, the tap is necessarily disconnected from the solenoid valve, with the latter able to continue dispensing water.

[0009] Inevitably, unwanted wastage of water and spills occur, both potentially harmful to the operation of the machine and undesirable because they require the tidying up and cleaning of the surfaces onto which the water has been poured.

[0010] Furthermore, in cases where prolonged maintenance is required, inconveniences could arise for users who, uninformed or simply distracted, could operate the operating control, with the solenoid valve which would dispense water without however supplying the desired finished product.

[0011] Another drawback related to the connection of the inlet nozzle to the solenoid valve is tied to the wear of the ending part of the nozzle meant to engage with the solenoid valve outlet.

[0012] This ending part wears down over time, leading to unavoidable water leaks resulting in unwanted malfunctions and spills.

Description of the Invention

[0013] The main aim of the present invention is to provide an ending device for dispensing machines which allows improving the control of the substances to be delivered.

[0014] One object of the present invention is to provide an ending device for dispensing machines which allows minimizing the waste of the substances to be delivered.

[0015] Another object of the present invention is to provide an ending device for dispensing machines which allows facilitating the maintenance operations of the machines themselves.

[0016] Another object of the present invention is to provide an ending device for dispensing machines which allows overcoming the aforementioned drawbacks of the prior art within the scope of a simple, rational, easy, efficient to use and cost-effective solution.

[0017] The aforementioned objects are achieved by the present ending device for dispensing machines having the characteristics of claim 1.

Brief Description of the Drawings

[0018] Other characteristics and advantages of the present invention will become more evident from the description of a preferred, but not exclusive embodiment of a device for dispensing machines, illustrated by way of an indicative, but nonlimiting example, in the attached drawings in which:

Figure 1 is an axonometric view of the ending device according to the invention;
Figure 2 is an axonometric exploded view of the ending device according to the invention;
Figures 3 and 4 are perspective views of the ending device according to the invention.

Embodiments of the Invention

[0019] With particular reference to these illustrations, reference numeral 1 globally indicates a device for dispensing machines.

[0020] The device 1 comprises a regulation assembly 2 activatable for the regulation of the outflow of a liquid substance to be mixed, preferably water.

[0021] In the present treatise, by the terms "activatable", "activation" and similar terms referred to the regulation assembly 2, is meant a condition of possible dispensing of the liquid substance by means of an outflow adjustable by the dispensing assembly itself.

[0022] In other words, when the regulation assembly is active, the liquid substance can be delivered by actuating specific commands present in the dispensing machine, usually accessible by a user.

[0023] When the regulation assembly is not active, on the other hand, the liquid substance cannot be dispensed.

[0024] In the present embodiment, the regulation assembly 2 comprises at least a conveying duct 3 of the liquid substance and a regulation element 4 operable for the regulation of the outflow of the liquid substance.

[0025] As shown in the figures, the conveying duct 3 is provided with an inlet end 5, in which the water to be regulated enters, and with an outlet end 6.

[0026] The regulation element 4 is interposed between the two ends 5, 6 so as to regulate the amount of water leaving the duct itself.

[0027] In the particular embodiment shown, the conveying duct 3 also comprises an auxiliary outlet end 6a, parallel to the outlet end 6.

[0028] The auxiliary outlet end 6a has the function of allowing a manual regulation of the maximum flow rate.

[0029] Solutions cannot be ruled out which provide for a larger number of outlet ends 6 or of auxiliary outlet ends 6a, or solutions which provide only one outlet end 6. Usefully, on the conveying duct 3 is also formed a cavity 100 which can be used for the fastening to front panels of beverage dispensing machines.

[0030] The regulation element 4 is of the type of a solenoid valve, which can be electronically controlled for the partial and/or total closure of the conveying duct 3 for the purpose of regulating the outflow of the liquid substance.

[0031] The regulation assembly 2 is provided with at least a coupling element 7 adapted to convey the liquid substance at output.

[0032] The coupling element 7 is coupled to the conveying duct 3 and is positioned downstream of the regulation element 4.

[0033] In the present embodiment, the coupling element 7 is coupled in a removable manner to the conveying duct 3.

[0034] This characteristic allows easy removing the coupling element from the regulation assembly 2, thus allowing an easy replacement thereof.

[0035] As shown in the illustrations, the coupling element 7 has a substantially tubular body 8, with a nozzle-shaped end portion 9 and a coupling portion 10 fitted to measure in the outlet end 6 so as to guarantee the seal with the conveying duct 3, in order to avoid liquid spills and leaks.

[0036] Different solutions cannot be ruled out which provide for different coupling elements 7, e.g. cannulas or other tubular or sheet-metal elements, associated in a removable way with the conveying duct 3.

[0037] Furthermore, solutions cannot be ruled out which provide for coupling elements 7 which are immoveable extensions of the conveying duct 3 itself.

[0038] Usefully, the coupling element 7 comprises a holding portion 11 on which it is possible to mount connecting elements with other mechanical or electronic parts useful for the operation of the device.

[0039] In the present embodiment, the holding portion 11 is locked together with the body 8 of the coupling element 7 and has a holding wall 11a which is substantially parallel to the body itself.

[0040] Different solutions cannot be ruled out in which the holding portion 11 is shaped differently, for example having extrusions or branches applied for the fastening to the front panels of beverage dispensing machines and adapted to receive in engagement other mechanical or electronic parts.

[0041] The device 1 also comprises at least a mixing element 12 in which the liquid substance is conveyable for the mixing thereof with a concentrated substance so as to form a substance to be consumed, e.g. a drink.

[0042] The mixing element 12 is associated in a removable manner with the coupling element 7 between an operating configuration (Figure 1) and a disassembly configuration (Figure 2).

[0043] In the operating configuration, the mixing element 12 is coupled to the coupling element 7 for the receiving of the liquid substance, thus allowing the correct operation of the device 1.

[0044] In the disassembly configuration, the mixing element 12 is moved away from the coupling element 7, in order to allow servicing the mixing element in a correct manner, or replacing a used mixing element with a new one.

[0045] As shown in the figures, the mixing element 12 comprises a mixing portion 13, adapted to receive the liquid substance and the concentrated substance to be mixed.

[0046] The mixing portion 13 has a substantially cylindrical shape and has an inlet mouth 14 and an outlet mouth 15.

[0047] In the operating configuration (Figure 1), the end portion 9 of the coupling element 7 is fitted into the mixing element through the inlet mouth 14.

[0048] The mixing portion 13 also comprises an auxiliary duct 16 interposed between the outlet mouth 15 and the inlet mouth 14.

[0049] The auxiliary duct 16 is associated with storage means for the storage of a concentrated substance, e.g. fruit juice concentrate, to be mixed with the liquid substance for the production of a substance to be consumed.

[0050] Usefully, the auxiliary duct 16 is connected to storage means by means of flexible hoses, but different solutions cannot be ruled out.

[0051] For example, storage means may comprise a peristaltic pump adapted to convey the concentrated substance at command in the auxiliary duct 16, and therefore in the mixing element 12.

[0052] Usefully, the mixing element 12 comprises an end portion 9 located downstream of the auxiliary duct 16 and adapted to convey the beverage at output.

[0053] In particular, the end portion 9 is associated with the outlet mouth 15 forming an extension of the mixing element 12.

[0054] The end portion 9 has a narrowing tubular conformation and extends in a substantially vertical direction, but different solutions cannot be ruled out which provide for an extension in an inclined direction, or a different

conformation, for example semi-cylindrical partially open.

[0055] Solutions cannot be ruled out which envisage a mixing element 12 provided with a mixing portion 13 and an end portion 9 made in a single body piece.

[0056] According to the invention, the device 1 comprises control means 17, 20 adapted to detect the operating configuration and operatively connected to the regulation assembly 2 for the activation thereof in the operating configuration, and for the deactivation thereof in the disassembly configuration.

[0057] The control means 17, 20 are adapted to detect the configuration of the device 1, recognizing when the mixing element 12 is coupled to the coupling element 7 compared to when the mixing element 12, on the other hand, is moved away from the coupling element 7.

[0058] Furthermore, the control means 17, 20 are operatively connected to the regulation assembly 2 for the activation or deactivation thereof. Advantageously, the control means 17, 20 comprise a reference element 17 locked together with the mixing element 12.

[0059] In the operating configuration, the reference element 17 occupies a predefined position compared to the conveying duct 3, shown in Figure 1.

[0060] In the present embodiment, the reference element 17 has an elongated conformation along a direction substantially parallel to the conveying duct 3 and, in the predefined position, it is partially side by side to the duct itself. Usefully, the reference element 17 has a fastening end 18, locked together with the mixing element 12, and an interaction end 19 having a narrowing conformation.

[0061] As shown in the figures, the reference element 17 has a longitudinal L-shaped extension, with the interaction end 19 located in a distal position with respect to the fastening end 18.

[0062] Different conformations cannot be ruled out for the reference element 17, e.g. having a squat shape, or having a zig-zag or inclined longitudinal extension, or having an inclination with respect to the mixing element 12 and/or to the conveying duct 3 different to that shown.

[0063] It cannot be ruled out that the reference element 17 can be formed on the auxiliary duct 16, or coincide with the auxiliary duct itself.

[0064] The control means 17, 20 also comprise a control device 20 adapted to interact with the reference element 17 for the detection of the predefined position.

[0065] The control device 20 is operatively connected to the regulation assembly 2 for the control of the activation/deactivation of the latter.

[0066] In particular, when the reference element 17 is in the predefined position, the control device 20 detects this position, therefore the operating configuration, and consequently activates the regulation assembly, thus making it possible to deliver the liquid substance.

[0067] Advantageously, the control device 20 is positioned on the holding portion 11. This way, the control device 20 is located at the regulation element 4, so as to facilitate the connection thereof.

[0068] In particular, the control device 20 comprises a control element 21 operatively connected to the regulation assembly 2.

[0069] Advantageously, the control element 21 is operatively connected to the regulation assembly 2, allowing the activation thereof when the reference element 17 is in the predefined position.

[0070] The control device 20 also comprises an interaction element 22 associated with it and adapted to interact with the reference element 17 when this is in the predefined position for the activation/deactivation of the regulation assembly 2.

[0071] In a first embodiment, the interaction element 22 is electrically associated with the control element 21.

[0072] In particular, the interaction element 22 is adapted to activate and deactivate said regulation assembly 2 as a result of the displacement of said interaction element 22 from a rest position to an active position and vice versa.

[0073] More particularly, when the interaction element 22 is in the rest position, the regulation assembly 2 is deactivated, since the relative electric circuit is open, whereas when the interaction element 22 achieves the active position, the electric circuit is closed, thus resulting in the activation of the regulation assembly 2.

[0074] The control element 21 is preferably of the type of a known electric apparatus, provided with electric circuits, not shown in the figures, which are interchangeable for conveying one or more electric pulses to the regulation assembly 2 in order to activate or deactivate it.

[0075] Usefully, the interaction element 22 is of the type of a limit switch element, e.g. a button or an operating lever.

[0076] The limit switch element is adapted to open/close or switch the electric circuits of the control element 21 in order to activate or deactivate the regulation assembly 2.

[0077] The solution illustrated in the figures shows a control device 20 of the type of a "micro switch", the interaction element 22 of which can be lifted by the reference element 17 when this moves to the predefined position.

[0078] The lifting and lowering of the interaction element 22 causes the switch of the circuits present in the control element 21, transmitting to the regulation assembly 2 an activation and deactivation pulse respectively.

[0079] Different solutions from the one shown therein cannot be ruled out, e.g. the interaction element 22 being the type of a relay.

[0080] In a second embodiment, not shown in the illustrations for the sake of simplicity, the interaction element 22 is electronically associated with the control element 21.

[0081] In this case, the interaction element 22 conveys an electronic signal to the control element 21 diversified according to whether or not the reference element 17 is in the predefined position.

[0082] Usefully, the interaction element is of the type

of an optical sensor, adapted to detect the presence of the reference element 17 in the predefined position. Different solutions cannot be ruled out, in which instead of the optical sensor there are other types of sensors, e.g. pressure or magnetic sensors.

[0083] Also embodiments different from those described above cannot be ruled out, for example with solutions that provide for a combination of electrical and electronic connections.

[0084] Furthermore, solutions other than those described above cannot be ruled out, for example that provide for a positioning of the control device 20 inside the conveying duct 3, with the interaction element 22 which, in the predefined position, can be arranged both outside and inside the duct itself.

[0085] Solutions cannot be ruled out either which provide for a different arrangement of the control means 17, 20, for example in which the reference element 17 is mounted on the regulation assembly 2 and in which the control device 20 is installed elsewhere.

[0086] The operation of the present invention is as follows and, in order to better understand the invention forming the subject of the present invention, it refers to a device 1 used for beverage dispensing machines.

[0087] In this case, the conveying duct 3 is adapted to convey water into the mixing element 12 where it is mixed with the concentrated substance in order to produce the drink to be consumed.

[0088] The latter is served to the consumer when it flows out of the end portion 9.

[0089] In the disassembly configuration, the mixing element 12 is moved away from the conveying duct 3 and the interaction element 22 does not interact with the interaction element 22.

[0090] This way, the control device 20 deactivates the regulation assembly 2, making it impossible to deliver water through the conveying duct 3.

[0091] In particular, the regulation element 4 operates a barrier of the conveying duct 3 adapted to prevent water outflow, whereas the control device 20 prevents the regulation element 4 from being activated to allow the outflow of the water itself.

[0092] This way, a consumer who accesses the controls of the dispensing machine wanting to dispense a beverage will be unable to do so.

[0093] In the operating configuration, the mixing element 12 and the conveying duct 3 are communicating through the coupling element 7 and the water can flow out of the duct inside the mixing element itself.

[0094] In this configuration, the reference element 17 is in the predefined position and interacts with the interaction element 22 of the control device 20, connecting the latter to the regulation assembly 2 and activating it.

[0095] In this configuration, the interaction element 22 operates on the circuits of the control element 21, with the latter enabling the possible operation of the regulation element 4.

[0096] This way, a consumer can select the beverage through a specific interface of the dispensing machine which is connected to the regulation assembly 2 and start dispensing.

[0097] In the first embodiment, the reference element 17, progressing towards the predefined position, lifts the interaction element 22.

[0098] The narrowing conformation of the interaction end 19 facilitates the correct interaction between the interaction element 22 and the reference element 17 during the passage from the disassembly configuration to the operating configuration.

[0099] The interaction element 22, lifted in approach to the control element 21, switches the circuits present in the latter and activates the regulation assembly 2.

[0100] In the second embodiment, there is an effect similar to that described above. The reference element 17 in the predefined position is detected by the interaction element 22, which transmits a corresponding electronic signal to the control element 21.

[0101] The latter, by receiving the electronic signal relating to the detection of the interaction element 22 in the predefined position, activates the detection assembly.

[0102] It has in practice been ascertained how the described invention achieves the intended objects and, in particular, the fact is underlined that the ending device for dispensing machines makes it possible to improve the control of the substances to be dispensed.

[0103] The control means, in fact, prevent the water from being dispensed in case of the mixing element not being fitted, avoiding inconvenience due to non-dispensing of the beverage or due to the uncontrolled spillage of water on the surfaces or in the dispensing machines.

[0104] The action of the control means, in particular the interaction between the control device and the reference element placed on the mixing element, makes it possible to minimize the waste of substances to be dispensed.

[0105] In fact, the control means make it possible to detect the operating configuration and, therefore, to activate/deactivate the regulation assembly.

[0106] This way, it is possible to avoid unintentional dispensing that would result in the waste of the substances dispensed, e.g. water.

[0107] In the light of what has been written, the ending device for dispensing machines makes it possible to facilitate the maintenance operations of the machines themselves, allowing the disassembly and/or replacement of the mixing element without interrupting the entire operation of the machine, but only deactivating the regulation assembly relating to a limited number of beverages to be dispensed.

Claims

1. Ending device (1) for dispensing machines comprising:

- a regulation assembly (2) activatable for the regulation of the outflow of a liquid substance to be mixed, having at least a coupling element (7) adapted to convey said liquid substance at output;
- at least a mixing element (12) in which said liquid substance is conveyable for the mixing thereof with a concentrated substance to form a substance to be consumed, associated in a removable manner with said coupling element (7) between an operating configuration, in which said mixing element (12) is coupled to said coupling element (7) for the receiving of said liquid substance, and a disassembly configuration, in which said mixing element (12) is moved away from said coupling element (7);

characterized by the fact that it comprises control means (17, 20) adapted to detect said operating configuration and operatively connected to said regulation assembly (2) for the activation thereof in the operating configuration, and for the deactivation thereof in the disassembly configuration.

2. Device (1) according to claim 1, **characterized by** the fact that said control means (17, 20) comprise:

- a reference element (17) locked together with said mixing element (12) and occupying a predefined position in said operating configuration;
- a control device (20) adapted to interact with said reference element (17) for the detection of said predefined position, and operatively connected to said regulation assembly (2) for the control of the activation/deactivation of the latter.

3. Device (1) according to claim 2, **characterized by** the fact that said control device (20) comprises:

- a control element (21) operatively connected to said regulation assembly (2); and
- an interaction element (22) associated with said control element (21) and adapted to interact with said reference element (17) when this is in the predefined position for the activation/deactivation of said regulation assembly (2).

4. Device (1) according to claim 3, **characterized by** the fact that said interaction element (22) is electrically associated with said control element (21) adapted to activate and deactivate said regulation assembly (2) as a result of the displacement of said interaction element (22) from a rest position to an active position and vice versa.

5. Device (1) according to claim 4, **characterized by** the fact that said interaction element (22) is of the type of a limit switch element.

6. Device (1) according to claim 3, **characterized by** the fact that said interaction element (22) is electronically associated with said control element (21).

7. Device (1) according to claim 6, **characterized by** the fact that said interaction element (22) is of the type of an optical sensor.

8. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said regulation assembly (2) comprises:

- at least a conveying duct (3) of said liquid substance;
- at least a regulation element (4) associated with said control means (17, 20) for the regulation of the outflow of said liquid substance.

9. Device (1) according to claim 8, **characterized by** the fact that said coupling element (7) is coupled to said conveying duct (3) and is positioned downstream of said regulation element (4).

10. Device (1) according to claim 8 or 9, **characterized by** the fact that said coupling element (7) is coupled in a removable manner to said conveying duct (3).

11. Device (1) according to claim 2 or to anyone of the claims from 3 to 10 when depending on claim 2, **characterized by** the fact that said coupling element (7) comprises a holding portion (11) on which said control device (20) is placed.

Patentansprüche

1. Endvorrichtung (1) für Ausgabegeräte umfassend:

- eine Regelungseinheit (2), die aktivierbar ist zur Regelung des Ausflusses einer zu mischenden flüssigen Substanz, aufweisend mindestens ein Kupplungselement (7), das geeignet ist, die flüssige Substanz am Ausgang zu fördern;
- mindestens ein Mischelement (12), in dem die flüssige Substanz förderbar ist, um sie mit einer konzentrierten Substanz zu mischen, um eine zu verbrauchende Substanz zu bilden, das in lösbarer Weise mit dem Kupplungselement (7) verbunden ist zwischen einer Betriebskonfiguration, in der das Mischelement (12) mit dem Kupplungselement (7) zur Aufnahme der flüssigen Substanz gekoppelt ist, und einer Demontagekonfiguration, in der das Mischelement (12) von dem Kupplungselement (7) wegbewegt ist;

dadurch gekennzeichnet, dass sie Steuermittel (17, 20) umfasst, die geeignet sind, die Betriebskonfiguration zu erfassen, und die mit der Regelungs-

einheit (2) operativ verbunden sind, um diese in der Betriebskonfiguration zu aktivieren und in der Demontagekonfiguration zu deaktivieren.

2. Vorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Steuermittel (17, 20) umfassen:

- ein Referenzelement (17), das mit dem Mischelement (12) verriegelt ist und eine vordefinierte Position in der Betriebskonfiguration einnimmt;
- eine Steuervorrichtung (20), die geeignet ist, mit dem Referenzelement (17) zur Erfassung der vordefinierten Position zusammenzuwirken, und die funktionell mit der Regelungseinheit (2) zur Steuerung der Aktivierung/Deaktivierung der letzteren verbunden ist.

3. Vorrichtung (1) nach Anspruch 2, **dadurch gekennzeichnet, dass** die Steuervorrichtung (20) umfasst:

- ein Steuerelement (21), das betriebsmäßig mit der Regelungseinheit (2) verbunden ist; und
- ein Interaktionselement (22), das mit dem Steuerelement (21) verbunden ist und geeignet ist, mit dem Referenzelement (17) zu interagieren, wenn dieses sich in der vordefinierten Position für die Aktivierung/Deaktivierung der Regelungsbaugruppe (2) befindet.

4. Vorrichtung (1) nach Anspruch 3, **dadurch gekennzeichnet, dass** das Interaktionselement (22) elektrisch mit dem Steuerelement (21) verbunden ist, das geeignet ist, die Regelungseinheit (2) infolge der Verschiebung des Interaktionselements (22) von einer Ruheposition in eine aktive Position und umgekehrt zu aktivieren und zu deaktivieren.

5. Vorrichtung (1) nach Anspruch 4, **dadurch gekennzeichnet, dass** das Interaktionselement (22) vom Typ eines Endschalterelements ist.

6. Vorrichtung (1) nach Anspruch 3, **dadurch gekennzeichnet, dass** das Interaktionselement (22) elektronisch mit dem Steuerelement (21) verbunden ist.

7. Vorrichtung (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** das Interaktionselement (22) vom Typ eines optischen Sensors ist.

8. Vorrichtung (1) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Regelungseinheit (2) umfasst:

- mindestens eine Förderleitung (3) der flüssigen Substanz;
- mindestens ein Regelungselement (4), das mit den Steuermitteln (17, 20) verbunden ist zur Regelung des Ausflusses der flüssigen Substanz.

9. Vorrichtung (1) nach Anspruch 8, **dadurch gekennzeichnet, dass** das Kupplungselement (7) mit der Förderleitung (3) gekoppelt ist und stromabwärts des Regelungselements (4) angeordnet ist.

10. Vorrichtung (1) nach Anspruch 8 oder 9, **dadurch gekennzeichnet, dass** das Kupplungselement (7) in lösbarer Weise mit der Förderleitung (3) gekoppelt ist.

11. Vorrichtung (1) nach Anspruch 2 oder nach einem der Ansprüche 3 bis 10, wenn auf Anspruch 2 zurückbezogen, **dadurch gekennzeichnet, dass** das Kupplungselement (7) einen Halteabschnitt (11) aufweist, auf dem die Steuervorrichtung (20) angeordnet ist.

Revendications

1. Dispositif de fin (1) pour machines de distribution comprenant :

- un ensemble de régulation (2) activable pour la régulation de l'écoulement sortant d'une substance liquide à mélanger, ayant au moins un élément de couplage (7) adapté pour transporter ladite substance liquide à une sortie ;
- au moins un élément de mélange (12) dans lequel ladite substance liquide est transportable pour la mélanger avec une substance concentrée pour former une substance à consommer, associé de manière amovible audit élément de couplage (7) entre une configuration de fonctionnement, dans laquelle ledit élément de mélange (12) est couplé audit élément de couplage (7) pour la réception de ladite substance liquide, et une configuration de démontage, dans laquelle ledit élément de mélange (12) est retiré dudit élément de couplage (7) ;

caractérisé par le fait qu'il comprend des moyens de commande (17, 20) adaptés pour détecter ladite configuration de fonctionnement et reliés opérationnellement audit ensemble de régulation (2) pour l'activation de ce dernier dans la configuration de fonctionnement et pour la désactivation de ce dernier dans la configuration de démontage.

2. Dispositif (1) selon la revendication 1, **caractérisé par le fait que** lesdits moyens de commande (17, 20) comprennent :

- un élément de référence (17) verrouillé conjointement avec ledit élément de mélange (12) et occupant une position prédéfinie dans ladite configuration de fonctionnement ;
- un dispositif de commande (20) adapté pour

interagir avec ledit élément de référence (17) pour la détection de ladite position prédéfinie, et relié opérationnellement audit ensemble de régulation (2) pour la commande de l'activation/la désactivation de ce dernier.

3. Dispositif (1) selon la revendication 2, **caractérisé par le fait que** ledit dispositif de commande (20) comprend :

- un élément de commande (21) relié opérationnellement audit ensemble de régulation (2) ; et
- un élément d'interaction (22) associé audit élément de commande (21) et adapté pour interagir avec ledit élément de référence (17) lorsque celui-ci est à la position prédéfinie pour l'activation/désactivation dudit ensemble de régulation (2).

4. Dispositif (1) selon la revendication 3, **caractérisé par le fait que** ledit élément d'interaction (22) est électriquement associé audit élément de commande (21) adapté pour activer et désactiver ledit ensemble de régulation (2) sous l'effet du déplacement dudit élément d'interaction (22) depuis une position de repos jusqu'à une position active et vice-versa.

5. Dispositif (1) selon la revendication 4, **caractérisé par le fait que** ledit élément d'interaction (22) est du type d'un élément de commutation de limite.

6. Dispositif (1) selon la revendication 3, **caractérisé par le fait que** ledit élément d'interaction (22) est électroniquement associé audit élément de commande (21).

7. Dispositif (1) selon la revendication 6, **caractérisé par le fait que** ledit élément d'interaction (22) est du type d'un capteur optique.

8. Dispositif (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait que** ledit ensemble de régulation (2) comprend :

- au moins un conduit de transport (3) de ladite substance liquide ;
- au moins un élément de régulation (4) associé auxdits moyens de commande (17, 20) pour la régulation de l'écoulement sortant de ladite substance liquide.

9. Dispositif (1) selon la revendication 8, **caractérisé par le fait que** ledit élément de couplage (7) est couplé audit conduit de transport (3) et est positionné en aval dudit élément de régulation (4).

10. Dispositif (1) selon la revendication 8 ou 9, **caractérisé par le fait que** ledit élément de couplage (7) est couplé de manière amovible audit conduit de transport (3).

11. Dispositif (1) selon la revendication 2 ou l'une quelconque des revendications 3 à 10 dépendant de la revendication 2, **caractérisé par le fait que** ledit élément de couplage (7) comprend une portion de maintien (11) sur laquelle ledit dispositif de commande (20) est placé.

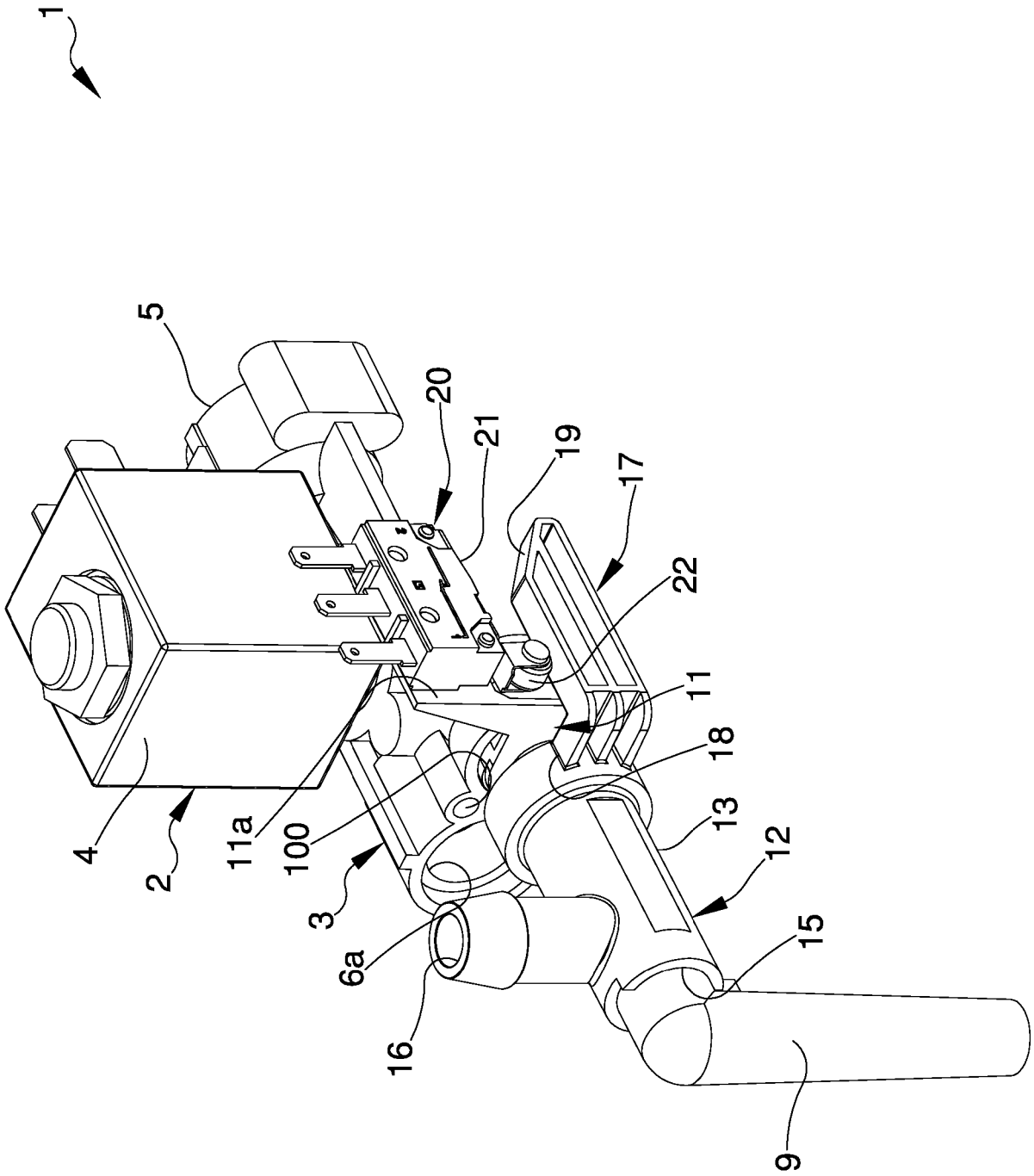


Fig.1

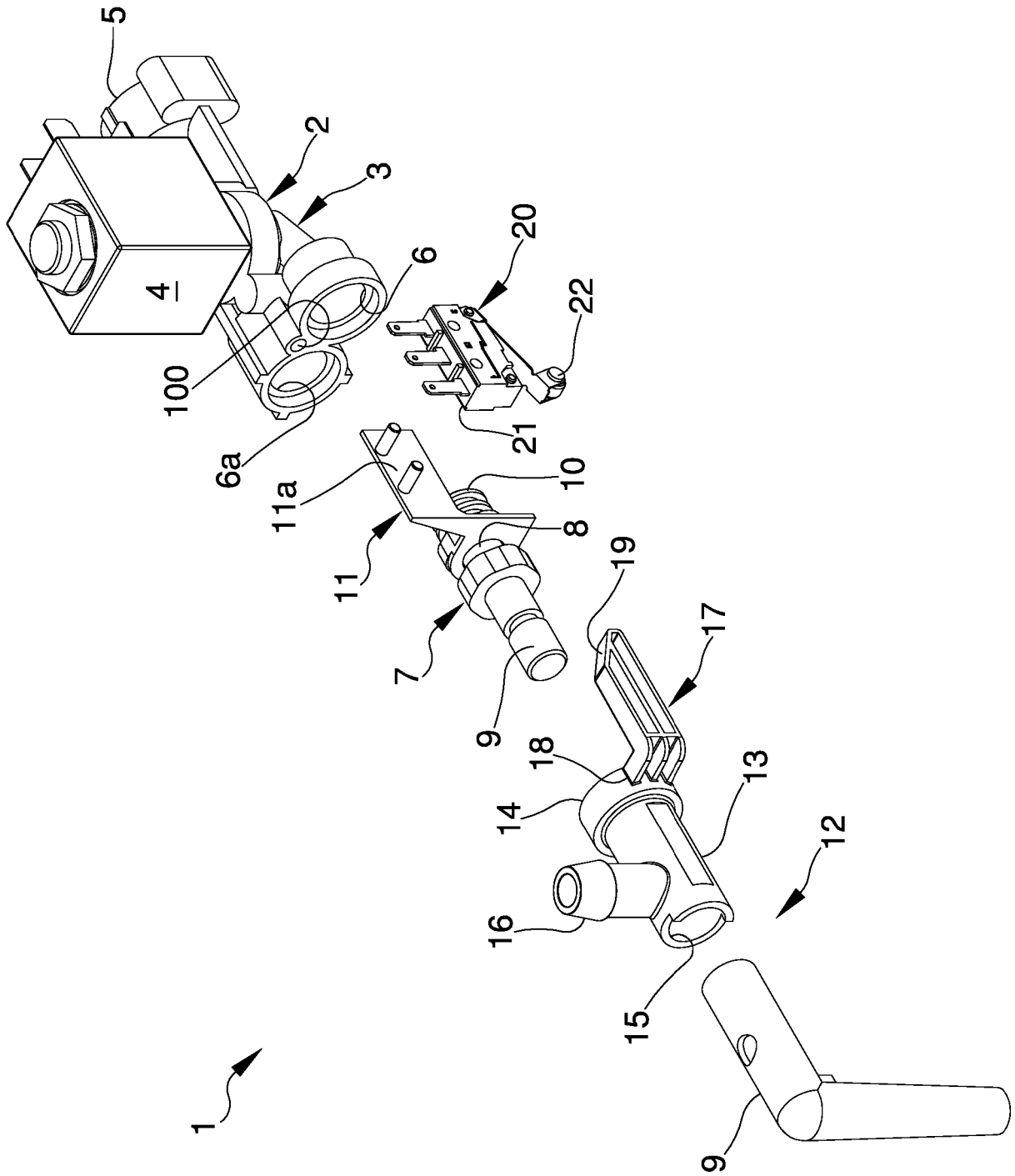


Fig.2

Fig.3

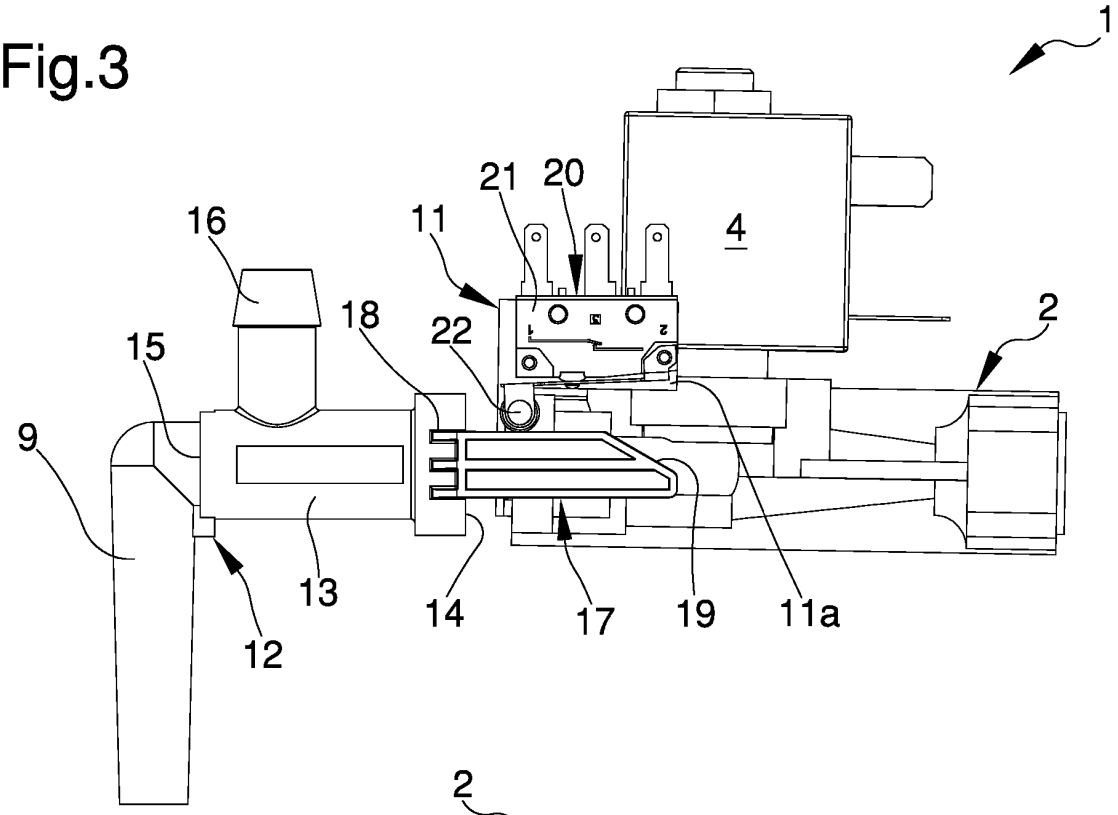
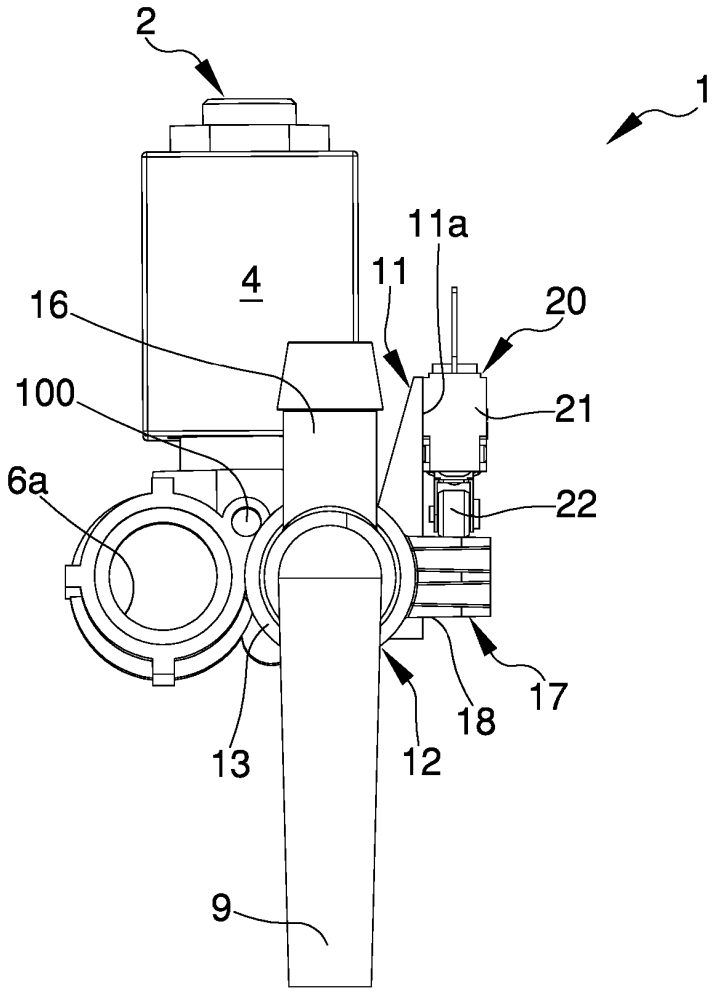

1
21
20
16
11
4
18
22
2
15
9
13
14
17
19
11a
12

Fig.4


2
1
11a
4
11
16
20
100
21
6a
22
17
18
13
12
9

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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