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(54) **DRINK DISPENSING DEVICE**

GETRÄNKEAUSGABEVORRICHTUNG

DISPOSITIF DE DISTRIBUTION DE BOISSONS

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Description

[0001] The present invention concerns a drink dispensing device and a method of controlling the dispensing of a drink from a tap. The present invention particularly concerns hot drink dispensing devices, such as instant boiling water taps.

[0002] The document US 9840407 B2 discloses a drink dispensing device for dispensing a drink from a tap, the device comprising a plurality of proximity sensors each for outputting a respective activation signal when a user moves a body part within a sensing range thereof and a controller for receiving activation signals from the plurality of proximity sensors and controlling the dispensing of drink from the tap in response thereto, and to stop the dispensing of the first drink in response to receiving an activation signal output by any of the plurality of proximity sensors.

[0003] Drink dispensers are becoming more common in homes and offices in an effort to minimise the use of disposable plastic bottles. Such drink dispensers typically comprise a tap or font which is fed by a supply unit providing, for example, chilled or carbonated water. Some units may also filter or purify the water. To dispense a drink, a user may select the desired drink by pressing an appropriate button on a control panel, which then activates the supply unit to dispense the selected drink through the tap.

[0004] In recent years, there has also been an increasing demand for drink dispensers which provide instant boiling water. By providing hot water at boiling or near to boiling temperature, hot beverages such as tea or coffee can be made immediately, without the need to boil a kettle. Advantageously, not only does this save time for the user, but it is also typically more energy efficient compared to the use of a conventional electric kettle, where excess water is often boiled and re-boiled unnecessarily. Such devices may also offer space savings because the boiling unit may be located under the counter or in a cupboard, and hot water may be dispensed from the same location as other drinks.

[0005] The dispensing of boiling water does however raise specific safety issues because it is dangerous to allow the water to overflow the receptacle being filled. To address this, drinks dispensers which are able to dispense hot or boiling drinks typically use dead man switches or buttons to actuate dispensing. As such, a drink will only be dispensed while a user is actively actuating the dispense button, and releasing the button will immediately stop dispensing. This is seen as an important safety feature and is consequently the prevailing standard in the art.

[0006] The 2020 outbreak of Coronovirus (COVID-19) has however raised new issues. In particular, in office and commercial environments, a drinks dispenser may be used by multiple people, and therefore there is a risk of transmitting infections through physical contact with the device. For example, a virus could potentially be transmitted through each user's contact with the surface of the dispense button. At the same time, conventional alternative dispense systems do not provide an adequate solution which would allow drinks to be dispensed without physical contact with the device.

[0007] In this connection, for example, some dispensers provide a mechanical leaver which can be manually depressed by the receptacle when a user moves it under the tap. However, such systems are not suitable for hot drink because a user is required to grip the receptacle during the dispense operation, and hence any overflow risks scalding their hands. Equally, some conventional systems employ auto-dispense features whereby a predetermined quantity of drink is dispensed automatically once a receptacle is positioned under the tap. However, this requires that a standard receptacle size is used, and that the receptacle is empty when a dispense operation is initiated. As such, auto-dispense solutions are inflexible and inconvenient, and also present safety risks if used incorrectly.

[0008] There is therefore a need for a drink dispensing device which addresses the above issues.

[0009] According to a first aspect of the present invention, there is provided a drink dispensing device for dispensing a drink from a tap, the device comprising: a plurality of proximity sensors each for outputting a respective activation signal when a user moves a body part within a sensing range thereof; and a controller for receiving activation signals from the plurality of proximity sensors and controlling the dispensing of drink from the tap in response thereto, wherein the plurality of proximity sensors comprise a first proximity sensor associated with a first drink, and wherein the controller is configured to (a) initiate the dispensing of the first drink in response to receiving a sequence of activation signals output by the first proximity sensor and (b) to stop the dispensing of the first drink in response to receiving an activation signal output by any of the plurality of proximity sensors.

[0010] In this way, a user may dispense a selected drink without making physical contact with the device, and without the user having to hold the drinks receptacle. As such, not only is the risk of transmitting infections through contact with the device avoided, but hot drinks may be safely dispensed without risk of scalding the user. The dispensing device is therefore particularly suited to dispensing hot drinks. At the same time as the above, the controller logic allows a reliable operation sequence to be implemented using relatively basic proximity sensors. That is, proximity sensors are typically activated by detecting disruptions in an electromagnetic field within their sensing range. As such, as switches, they can be prone to mis-triggering, as well as failing to detect the continued presence of an object. However, with the claimed arrangement, the risk of inadvertently triggering the device is minimised because the controller requires the user to perform a deliberate sequence of sensor activations. Equally, once initiated, the controller continues the dispensing operation without requiring the user to

maintain their finger above the sensor. Nevertheless, the user can still easily stop a dispensing operation by activating any of the plurality of sensors. This thereby allows the flow of liquid to be turned off rapidly to stop the receptacle overflowing.

[0011] In embodiments, the plurality of proximity sensors comprise a second proximity sensor associated with a second drink, and wherein the controller is configured to (a) initiate the dispensing of the second drink in response to receiving a sequence of activation signals output by the second proximity sensor and (b) to stop the dispensing of the second drink in response to receiving an activation signal output by any of the plurality of proximity sensors. In this way, the dispenser may be used to dispense a variety of different drinks.

[0012] In embodiments, the sequence of activation signals comprises a plurality of activation signals received within a predetermined time period. In this way, in order to initiate a dispense operation, the user must perform a sequence of movements within a certain time, thereby minimising the risk of inadvertently triggering the device.

[0013] In embodiments, the sequence of activation signals comprises two sequential activation signals within a predetermined time period.

[0014] In embodiments, the two sequential activation signals comprise a selection activation signal followed by a confirmation activation signal. In this way, in order to initiate a dispense operation, a user must perform both a selection movement and a confirmation movement to generate the two independent activation signals.

[0015] In embodiments, the controller is configured to output a control signal to a pump or valve for controlling the dispensing of drink from the tap. In this way, the controller may output a signal to drive the pump or open the valve for dispensing drink from the tap.

[0016] In embodiments, the controller is configured to receive an input from a receptacle detection sensor for detecting a receptacle beneath the tap and to prevent the dispensing of drink from the tap when the receptacle is absent. In this way, the controller prevents dispensing operations if a cup, glass, or other receptacle is not in place below the tap.

[0017] In embodiments, the drink dispensing device further comprises: an indicator for displaying indications to a user, wherein the controller controls the indicator to indicate that a sequence of activation signals has been initiated. In this way, visual feedback is provided to the user. In a preferred embodiment, the indicator may be a display screen. The display screen may display information, such as instruction information, drink option information, and drink dispensing information.

[0018] In embodiments, the controller controls the indicator to display a selection indication in response to receiving a first activation signal in the sequence of activation signals. In this way, the display provides feedback to show a selection operation has been initiated.

[0019] In embodiments, the selection indication comprises an indication of the drink associated with the proximity sensor from where the first activation signal is generated. In this way, the display provides feedback to show which drink has been selected.

[0020] In embodiments, the controller controls the indicator to display a conformation indication in response to receiving a last activation signal in the sequence of activation signals. In this way, the display provides feedback to show a selection has been confirmed.

[0021] In embodiments, the confirmation indication comprises an indication that the tap will dispense the drink associated with the proximity sensor from where the sequence of an activation signal was generated. In this way, the display provides feedback to show a dispense operation is about to be initiated.

[0022] In embodiments, the controller calculates an estimated volume of drink dispensed based on flow rate or drink dispensing time and provides output information based on the estimated volume of drink dispensed. In this way, a user may be provided with information regarding the amount of drink dispensed, or related information, such as an estimated number of plastic bottles saved by using the device. This information may relate to a time period beginning from the device's installation or, for example, over the last year or month. The information may thereby provide positive affirmation of the ecological benefits of using the device.

[0023] In embodiments, the drink dispensing device further comprises: a tap for delivering the drink into a receptacle; and a supply unit for supplying a flow of drink to the tap.

[0024] According to a second aspect of the present invention, there is provided a method of controlling the dispensing of a drink from a tap, the method comprising: providing a plurality of proximity sensors each for outputting a respective activation signal when a user moves a body part within a sensing range thereof, the plurality of proximity sensors comprising a first proximity sensor associated with a first drink; receiving the activation signals at a controller; initiating the dispensing of the first drink in response to receiving a sequence of activation signals output by the first proximity sensor; and stopping the dispensing of the first drink in response to receiving an activation signal output by any of the plurality of proximity sensors.

[0025] In this way, a method is provided for dispensing a selected drink without requiring a user to make physical contact with the dispensing device, and without the user having to hold the drinks receptacle.

[0026] An illustrative embodiment of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows a drink dispensing device according to a first embodiment of the invention; and

Figure 2 shows a schematic drawing of the drinks dispensing device shown in Figure 1.

[0027] As shown figure 1, a counter-top tap 4 is pro-

vided for dispensing drink from an outlet 5 into a receptacle 6, such as a cup or glass. In this embodiment, the counter is further provided with a meshed drain 7 which serves to mark where the receptacle 6 should be placed to receive drink from the outlet 5, and for draining away any liquid overflow or spillage.

[0028] The tap 4 is fed from an under-the-counter supply unit 15, which is shown in Figure 2. The supply unit 15, houses a water filter, a pump, a chilling mechanism, a carbonating mechanism, and boiling chamber. As such, the supply unit 15 may be actuated to supply boiling water, as well as chilled still and carbonated water, through the tap 4.

[0029] The supply unit 15 is controlled by control unit 1 to actuate the dispensing of drinks through tap 4. The control unit 1 comprises a display screen 2 and an array of three proximity sensors 12, 10, 8 associated with the drinks boiling water, chilled still water, and chilled carbonated water, respectively. The display screen 2 is controlled by a processor 14 housed within the control unit 1 and is used to display icons 13, 11, 9, indicating the drinks which are available. If a particular drink is unavailable, the control unit 1 may remove or modify the associated icon to alert the user.

[0030] The control unit 1 may further present variable information 3 on the display 2. In this embodiment, when drinks are not being dispensed, the variable information 3 may provide a user with instructions for using the dispenser. During a dispense operation, the variable information 3 may switch to providing a user with information based on the volume of drink dispensed. For example, the control unit's processor 14 may calculate an estimate of the volume of liquid dispensed based on logged dispense durations. From this data, an estimated number of plastic bottles saved since the device was installed maybe calculated and displayed as the variable information 3. For example, an average plastic bottle size of 750ml may be set, and after each 750ml of drink has been dispensed, the bottle counter may increase by 1 to provide users with positive affirmation of the ecological benefits.

[0031] The proximity sensors 12, 10, 8 are activated when an object is moved within a sensing range of their detection surfaces. Preferably, this sensing range is between 10-30mm and in this embodiment is set to be approximately 20mm. As such, when a user places a body part (typically their finger) within 20mm of one of the sensors, the sensor is activated to transmit a detection signal to the processor 14 within the control unit 1. The control unit's processor 14 responds to activations of the proximity sensors 12, 10, 8 to output an output signal for actuating the supply unit 15 to dispense drinks through tap 4.

[0032] To dispense a drink, a user firstly selects one of the available drinks by hovering their finger within 20mm of the associated one of the proximity sensors 12, 10, 8. Upon the activation of the respective proximity sensor, the control unit 1 modifies the display to highlight the icon 13, 11, 9 associated with the selected drink. This provides user feedback to indicate a selection has been made. To then begin dispensing the selected drink, a user must retract their finger to deactivate the proximity sensor, and then subsequently reactivate the same proximity sensor within a predetermined time period by returning their finger to the hovering position. In this embodiment, the predetermined time period is three seconds.

[0033] In this connection, to implement the above, the control unit's processor 14 generates an appropriate output signal for actuating the supply unit to dispense the selected drink in response to detecting that the same proximity sensor has been activated in an uninterrupted sequence of two independent activations within three seconds of each other. Accordingly, a user is required to select a drink and then confirm their selection in three independent movements comprising moving their finger to the sensor, retracting their finger, and then returning their finger. The activation of any other of the proximity sensors during the sequence will reset the selection. As such, the risk of unintentionally triggering a dispense operation is minimised because a user is required to undertake deliberate movement actions adhering to a predefined sequence.

[0034] Once the dispense operation has been triggered, the display 2 may switch to displaying the variable information 3 related to the volume of drinks dispensed, as discussed above.

[0035] To stop the dispensing of the selected drink, a user simply needs to activate any of the proximity sensors 12, 10, 8. That is, the control unit's processor 14 stops outputting the output signal to the supply unit in response to detecting the activation of any of the proximity sensors 12, 10, 8. A user can therefore rapidly stop a dispense operation by, for example, simply waiving their hand above the array of proximity sensors, without requiring them to be precise in this movement. The processor 14 may be further provided with a time-out feature whereby a dispense operation is automatically stopped after a predetermined time period to prevent wastage if a user accidentally leaves the device after a dispense operation has been initiated.

[0036] Accordingly, a drink dispensing device is provided which allows touch-less operation, without being prone to accidental triggering, and whilst allowing a user to easily stop a dispense operation to avoid spillage.

[0037] It will be understood that the embodiment illustrated above shows an application of the invention only for the purposes of illustration. In practice the invention as defined in the appended claims may be applied to many different configurations, the detailed embodiments being straightforward for those skilled in the art to implement.

[0038] For example, the drink dispensing device may be provided as a controller which is retrofitted to an existing tap and supply unit. That is, because the controller may output a standard output signal for actuating the

supply unit, the device can be fitted to an existing system, replacing or in addition to a conventional control panel, to provide touch-less functionality.

[0039] Furthermore, it will be understood that various types of proximity sensors may be used with the invention. Preferably, the proximity sensors allow detection while wearing gloves. For example, in embodiments, photoelectric proximity sensors are used. In other embodiments, the proximity sensors are capacitive proximity sensors.

Claims

1. A drink dispensing device for dispensing a drink from a tap (4), the device comprising:

a plurality of proximity sensors (8, 10, 12) each for outputting a respective activation signal when a user moves a body part within a sensing range thereof; and
a controller (1) for receiving activation signals from the plurality of proximity sensors and controlling the dispensing of drink from the tap in response thereto,
wherein the plurality of proximity sensors comprise a first proximity sensor associated with a first drink, and
wherein the controller is configured to (a) initiate the dispensing of the first drink in response to receiving a sequence of activation signals output by the first proximity sensor and (b) to stop the dispensing of the first drink in response to receiving an activation signal output by any of the plurality of proximity sensors.

2. A drink dispensing device according to claim 1, wherein the plurality of proximity sensors comprise a second proximity sensor associated with a second drink, and
wherein the controller is configured to (a) initiate the dispensing of the second drink in response to receiving a sequence of activation signals output by the second proximity sensor and (b) to stop the dispensing of the second drink in response to receiving an activation signal output by any of the plurality of proximity sensors.

3. A drink dispensing device according to any preceding claim, wherein the sequence of activation signals comprises a plurality of activation signals received within a predetermined time period.

4. A drink dispensing device according to any preceding claim, wherein the sequence of activation signals comprises two sequential activation signals within a predetermined time period.

5. A drink dispensing device according to claim 4, wherein the two sequential activation signals comprise a selection activation signal followed by a confirmation activation signal.

6. A drink dispensing device according to any preceding claim, wherein the controller is configured to output a control signal to a pump or valve for controlling the dispensing of drink from the tap.

7. A drink dispensing device according to any preceding claim, wherein the controller is configured to receive an input from a receptacle detection sensor for detecting a receptacle beneath the tap and to prevent the dispensing of drink from the tap when the receptacle is absent.

8. A drink dispensing device according to any preceding claim, further comprising:

an indicator for displaying indications to a user, wherein the controller controls the indicator to indicate that a sequence of activation signals has been initiated.

9. A drink dispensing device according to claim 8, wherein the controller controls the indicator to display a selection indication in response to receiving a first activation signal in the sequence of activation signals.

10. A drink dispensing device according to claim 9, wherein the selection indication comprises an indication of the drink associated with the proximity sensor from where the first activation signal is generated.

11. A drink dispensing device according to any of claims 8-10, wherein the controller controls the indicator to display a conformation indication in response to receiving a last activation signal in the sequence of activation signals.

12. A drink dispensing device according to claim 11, wherein the confirmation indication comprises an indication that the tap will dispense the drink associated with the proximity sensor from where the sequence of activation signals was generated.

13. A drink dispensing device according to any preceding claim,
wherein the controller calculates an estimated volume of drink dispensed based on flow rate or drink dispensing time and provides output information based on the estimated volume of drink dispensed.

14. A drink dispensing device according to any preceding claim, further comprising:

a tap for delivering drink into a receptacle; and
a supply unit for supplying a flow of drink to the tap.

15. A method of controlling the dispensing of a drink from a tap (4), the method comprising:

providing a plurality of proximity sensors (8, 10, 12) each for outputting a respective activation signal when a user moves a body part within a sensing range thereof, the plurality of proximity sensors comprising a first proximity sensor associated with a first drink;
receiving the activation signals at a controller (1);
initiating the dispensing of the first drink in response to receiving a sequence of activation signals output by the first proximity sensor; and
stopping the dispensing of the first drink in response to receiving an activation signal output by any of the plurality of proximity sensors.

Patentansprüche

1. Getränkespender-Vorrichtung für die Ausgabe eines Getränks aus einem Zapfhahn (4), die Vorrichtung umfassend:

Eine Vielzahl von Näherungssensoren (8, 10, 12) jeweils für die Ausgabe eines entsprechenden Aktivierungssignals, wenn ein Benutzer ein Körperteil in einen Abtastbereich davon bewegt; und
eine Steuereinheit (1) für den Empfang der Aktivierungssignale aus der Vielzahl der Näherungssensoren und Steuerung der Ausgabe des Getränks aus dem Zapfhahn als Reaktion darauf,
wobei die Vielzahl der Näherungssensoren einen ersten Näherungssensor umfasst, der mit einem ersten Getränk verbunden ist, und
wobei die Steuereinheit konfiguriert ist, (a) die Ausgabe des ersten Getränks als Reaktion auf den Empfang einer Sequenz von Aktivierungssignalen einzuleiten, die von dem ersten Näherungssensor ausgegeben wurden und (b) die Ausgabe des ersten Getränks als Reaktion auf den Empfang eines Aktivierungssignals, das von der Vielzahl der Näherungssensoren ausgegeben wurde, zu stoppen.

2. Getränkespender-Vorrichtung nach Anspruch 1, wobei die Vielzahl der Näherungssensoren einen zweiten Näherungssensor umfasst, der mit einem zweiten Getränk verbunden ist, und
wobei die Steuereinheit konfiguriert ist, (a) die Ausgabe des zweiten Getränks als Reaktion auf den Empfang einer Sequenz von Aktivierungssignalen einzuleiten, die von dem zweiten Näherungssensor ausgegeben wurden und (b) die Ausgabe des zweiten Getränks als Reaktion auf den Empfang eines Aktivierungssignals, das von der Vielzahl der Näherungssensoren ausgegeben wurde, zu stoppen.

3. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche, wobei die Sequenz der Aktivierungssignale eine Vielzahl von Aktivierungssignalen umfasst, die innerhalb eines vorbestimmten Zeitraums empfangen werden.

4. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche, wobei die Sequenz der Aktivierungssignale zwei Aktivierungssignale innerhalb eines vorbestimmten Zeitraums umfasst.

5. Getränkespender-Vorrichtung nach Anspruch 4, wobei die zwei sequentiellen Aktivierungssignale ein Auswahl-Aktivierungssignal gefolgt von einem Bestätigungs-Aktivierungssignal umfassen.

6. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche, wobei die Steuereinheit konfiguriert ist, ein Steuerungssignal an eine Pumpe oder ein Ventil für die Steuerung der Ausgabe des Getränks aus dem Zapfhahn auszugeben.

7. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche, wobei die Steuereinheit konfiguriert ist, eine Eingabe von einem Gefäß-Erfassungssensor für das Erfassen eines Gefäßes unter dem Zapfhahn zu empfangen und die Ausgabe des Getränks aus dem Zapfhahn zu verhindern, wenn kein Gefäß vorhanden ist.

8. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche, ferner umfassend:

Eine Anzeige, um einem Benutzer Anweisungen anzuzeigen,
wobei die Steuereinheit die Anzeige regelt, um anzuzeigen, dass eine Sequenz von Aktivierungssignalen eingeleitet wurde.

9. Getränkespender-Vorrichtung nach Anspruch 8, wobei die Steuereinheit die Anzeige regelt, um eine Auswahl-Anzeige als Reaktion auf den Empfang eines ersten Aktivierungssignals in der Sequenz der Aktivierungssignale anzuzeigen.

10. Getränkespender-Vorrichtung nach Anspruch 9, wobei die Auswahl-Anzeige eine Anzeige des Getränks umfasst, das mit dem Näherungssensor verbunden ist, von dem das erste Aktivierungssignal erzeugt wird.

11. Getränkespender-Vorrichtung nach Anspruch 8-10, wobei die Steuereinheit die Anzeige regelt, um eine Bestätigungs-Anzeige als Reaktion auf den Empfang eines letzten Aktivierungssignals in der Sequenz der Aktivierungssignale anzuzeigen.

12. Getränkespender-Vorrichtung nach Anspruch 11, wobei die Bestätigungs-Anzeige eine Anzeige umfasst, dass der Zapfhahn das Getränk, das mit dem Näherungssensor verbunden ist, von dem die Sequenz der Aktivierungssignale erzeugt wurde, ausgibt.

13. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche,
wobei die Steuereinheit ein geschätztes Getränkevolumen berechnet, das auf der Basis der Durchflussrate oder Getränke-Ausgabezeit ausgegeben wird und eine Ausgabeinformation auf der Basis des geschätzten ausgegebenen Volumens bereitstellt.

14. Getränkespender-Vorrichtung nach einem der vorhergehenden Ansprüche, ferner umfassend:

Einen Zapfhahn für die Ausgabe eines Getränks in ein Gefäß; und
eine Zuführeinheit für die Zufuhr eines Getränkestroms an den Zapfhahn.

15. Ein Verfahren für die Steuerung der Ausgabe eines Getränks aus einem Zapfhahn (4), das Verfahren umfassend:

Bereitstellen einer Vielzahl von Näherungssensoren (8, 10, 12) jeweils für die Ausgabe eines entsprechenden Aktivierungssignals, wenn ein Benutzer ein Körperteil innerhalb eines Erfassungsbereichs davon bewegt, die Vielzahl der Näherungssensoren umfasst einen ersten Näherungssensor, der mit einem ersten Getränk verbunden ist;
Empfangen des Aktivierungssignals an einer Steuereinheit (1);
Einleiten der Ausgabe des ersten Getränks als Reaktion auf das Empfangen einer Sequenz von Aktivierungssignalen, die von dem ersten Näherungssensor ausgegeben werden; und
Stoppen der Ausgabe des ersten Getränks als Reaktion auf das Empfangen eines Aktivierungssignals, das von einem der Vielzahl von Näherungssensoren ausgegeben wird.

Revendications

1. Dispositif de distribution de boisson destiné à distribuer une boisson à partir d'un robinet (4), le dispositif comprenant :

une pluralité de capteurs de proximité (8, 10, 12), chacun destiné à émettre en sortie un signal d'activation respectif lorsqu'un utilisateur déplace une partie du corps à l'intérieur d'une plage de détection de celui-ci ; et
un dispositif de commande (1) destiné à recevoir des signaux d'activation provenant de la pluralité de capteurs de proximité et à commander la distribution de boisson à partir du robinet en réponse à ceux-ci,
dans lequel la pluralité de capteurs de proximité comprend un premier capteur de proximité associé à une première boisson, et
dans lequel le dispositif de commande est configuré pour (a) déclencher la distribution de la première boisson en réponse à la réception d'une séquence de signaux d'activation émis par le premier capteur de proximité et (b) arrêter la distribution de la première boisson en réponse à la réception d'un signal d'activation émis par un capteur quelconque de la pluralité de capteurs de proximité.

2. Dispositif de distribution de boisson selon la revendication 1, dans lequel la pluralité de capteurs de proximité comprend un second capteur de proximité associé à une seconde boisson, et
dans lequel le dispositif de commande est configuré pour (a) déclencher la distribution de la seconde boisson en réponse à la réception d'une séquence de signaux d'activation émis par le second capteur de proximité et (b) arrêter la distribution de la seconde boisson en réponse à la réception d'un signal d'activation émis par un capteur quelconque de la pluralité de capteurs de proximité.

3. Dispositif de distribution de boisson selon une quelconque revendication précédente, dans lequel la séquence de signaux d'activation comprend une pluralité de signaux d'activation reçus à l'intérieur d'une période de temps prédéfinie.

4. Dispositif de distribution de boisson selon une quelconque revendication précédente, dans lequel la séquence de signaux d'activation comprend deux signaux d'activation séquentiels à l'intérieur d'une période de temps prédéfinie.

5. Dispositif de distribution de boisson selon la revendication 4, dans lequel les deux signaux d'activation séquentiels comprennent un signal d'activation de sélection suivi d'un signal d'activation de confirmation.

6. Dispositif de distribution de boisson selon une quelconque revendication précédente, dans lequel le dispositif de commande est configuré pour émettre en sortie un signal de commande à une pompe ou

une vanne destiné à commander la distribution de boisson à partir du robinet.

7. Dispositif de distribution de boisson selon une quelconque revendication précédente, dans lequel le dispositif de commande est configuré pour recevoir une entrée provenant d'un capteur de détection de récipient destiné à détecter un récipient sous le robinet et pour empêcher la distribution de boisson à partir du robinet lorsque le récipient est absent.

8. Dispositif de distribution de boisson selon une quelconque revendication précédente, comprenant en outre :

un indicateur destiné à afficher des indications à un utilisateur,
dans lequel le dispositif de commande commande l'indicateur pour indiquer qu'une séquence de signaux d'activation a été initiée.

9. Dispositif de distribution de boisson selon la revendication 8, dans lequel le dispositif de commande commande l'indicateur pour afficher une indication de sélection en réponse à la réception d'un premier signal d'activation dans la séquence de signaux d'activation.

10. Dispositif de distribution de boisson selon la revendication 9, dans lequel l'indication de sélection comprend une indication de la boisson associée au capteur de proximité à partir duquel le premier signal d'activation est généré.

11. Dispositif de distribution de boisson selon l'une quelconque des revendications 8 à 10, dans lequel le dispositif de commande commande l'indicateur pour afficher une indication de conformation en réponse à la réception d'un dernier signal d'activation dans la séquence de signaux d'activation.

12. Dispositif de distribution de boisson selon la revendication 11, dans lequel l'indication de confirmation comprend une indication que le robinet va distribuer la boisson associée au capteur de proximité à partir duquel la séquence de signaux d'activation a été générée.

13. Dispositif de distribution de boisson selon une quelconque revendication précédente, dans lequel le dispositif de commande calcule un volume estimé de boisson distribuée sur la base du débit ou du temps de distribution de la boisson et fournit des informations de sortie sur la base du volume estimé de boisson distribuée.

14. Dispositif de distribution de boisson selon une quelconque revendication précédente, comprenant en outre :

un robinet destiné à délivrer une boisson dans un récipient ; et
une unité d'alimentation destinée à fournir un écoulement de boisson au robinet.

15. Procédé de commande de la distribution d'une boisson à partir d'un robinet (4), le procédé comprenant :

fournir une pluralité de capteurs de proximité (8, 10, 12), chacun destiné à émettre un signal d'activation respectif lorsqu'un utilisateur déplace une partie du corps à l'intérieur d'une plage de détection de celui-ci, la pluralité de capteurs de proximité comprenant un premier capteur de proximité associé à une première boisson ;
recevoir les signaux d'activation au niveau d'un dispositif de commande (1) ;
déclencher la distribution de la première boisson en réponse à la réception d'une séquence de signaux d'activation émis par le premier capteur de proximité ; et
arrêter la distribution de la première boisson en réponse à la réception d'un signal d'activation émis par un capteur quelconque de la pluralité de capteurs de proximité.

FIG. 1

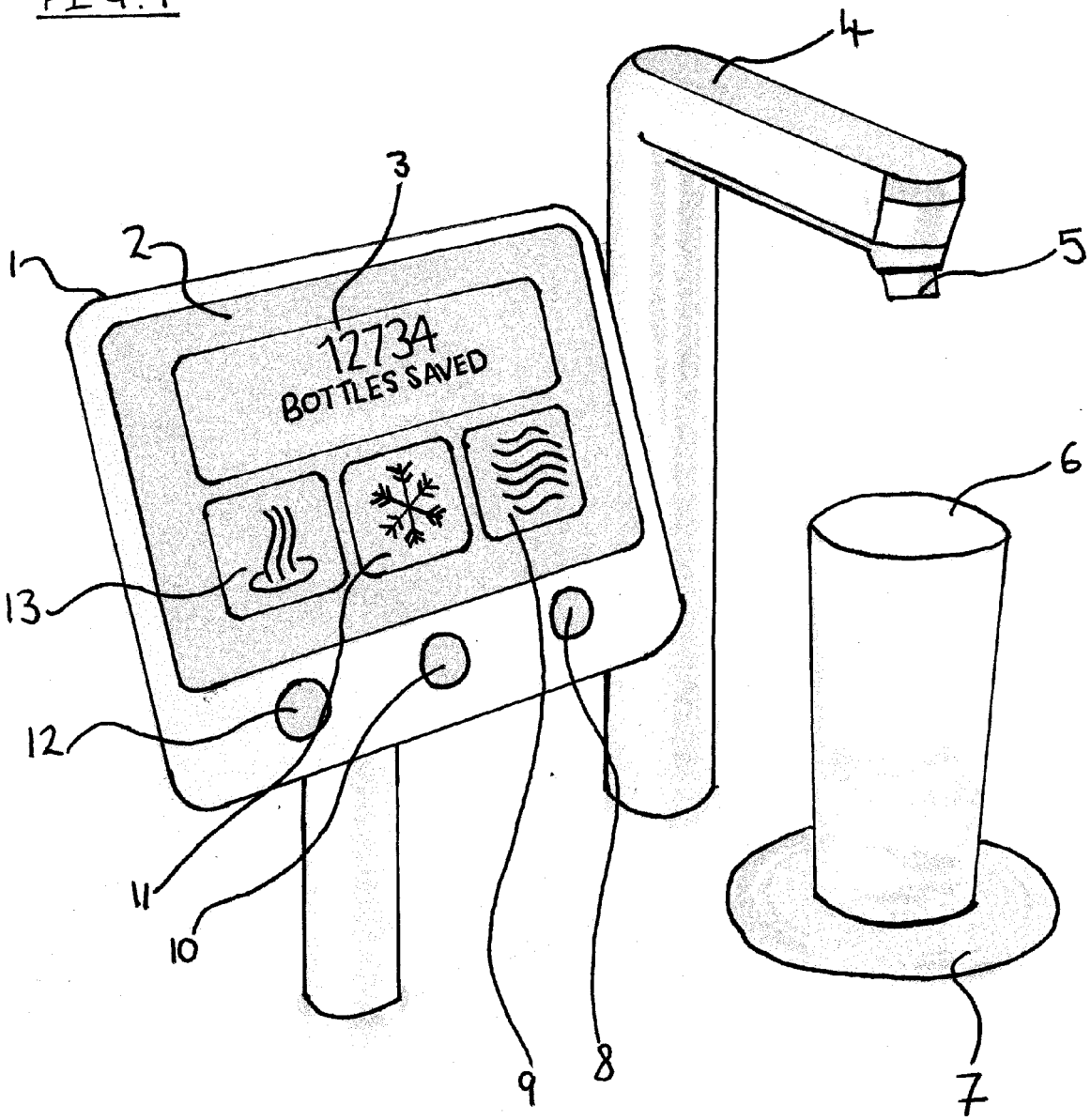
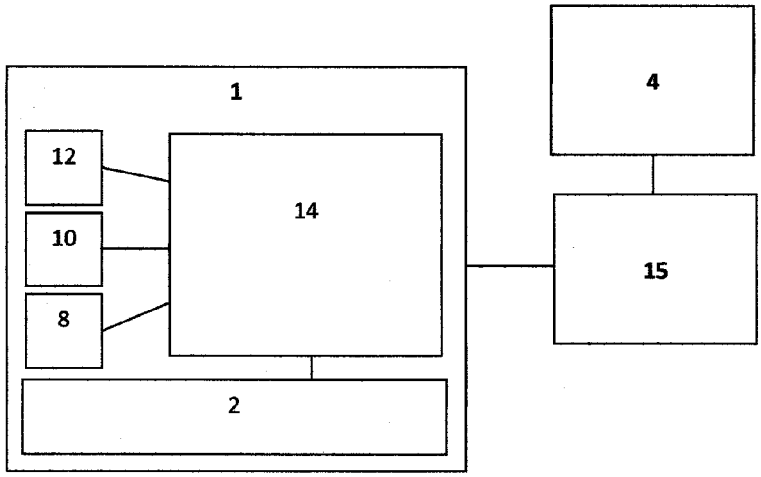


Fig. 2



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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