A handheld controller for filling wine barrels with wine or other liquid containers with liquid includes a pressure sensor and a removable dip tube. The dip tube is inserted in the wine barrel and a pressure sensor coupled to the dip tube measures a pressure in the dip tube. The measured pressure corresponds to a liquid level in the wine barrel. The handheld controller is also coupled to a pump for filling the wine barrel with wine. The pressure sensor may be calibrated to detect a desired fill level of the wine barrel. A microprocessor in the handheld controller monitors the measured pressure of the dip tube and shuts off the pump when the measured pressure reaches the calibrated pressure. The handheld controller improves throughput of filling wine barrels and reduces or eliminates overfill of wine barrels, thereby reducing unsanitary or hazardous conditions.
FOR START BUTTON DEPRESSED

FIG. 4

FOR START BUTTON PRESSED

FIG. 5
2. BUTTON DEPRESSED AND HELD?

START

NO

STOP BUTTON DEPRESSED AND HELD?

YES

MEASURE PRESSURE

START

NO

STOP BUTTON DEPRESSED?

YES

MEASURE FIRST PRESSURE

DELAY FOR PREDETERMINED TIME

MEASURE SECOND PRESSURE

ABS (FIRST PRESSURE - SECOND PRESSURE) < THRESHOLD?

YES

INDICATE TEST PASTED

NO

INDICATE TEST FAILURE

STOP BUTTON DEPRESSED?

YES

IS PRESSURE ≥ MIN & ≤ MAX RANGE?

YES

STORE LAST MEASURED PRESSURE AS CALIBRATED PRESSURE

NO

FIG. 6

FIG. 7
HANDHELD CONTROLLER FOR FILLING WINE BARRELS

TECHNICAL FIELD

[0001] This disclosure generally relates to a controller for pumps. More specifically, this disclosure relates to a hand-held controller that operates a pump for filling wine barrels.

BACKGROUND OF THE INVENTION

[0002] Wine barrels are often filled using a pump under manual control of one, two, or more operators. The operator must continuously judge the amount of liquid in the wine barrel and shut off the pump at the time the wine barrel is filled. Any operator error resulting in misjudging the level of wine in the wine barrel results in overflow of wine from the wine barrel. Any wine spilled as a result of overfilling produces a condition for opportunistic bacteria to spoil the wine resulting in loss of revenue. As a result of the wine barrels being stacked one over the other and the small openings in the large wine barrels, the operator often has difficulty visually determining the level of wine in the wine barrel.

[0003] According to one alternative, the operator of the pump for filling the wine barrel may throttle the pumping speed of wine into the barrel to reduce the overflow of wine into the barrel. However, decreasing the pumping speed results in slower filling of the wine barrels and a decrease in throughput of the winery, which is undesirable.

[0004] According to another alternative, conductivity sensors may be used to detect the wine level in a wine barrel. Conductivity sensors detect a fill level in the wine barrel by detecting whether current flows between two electrodes. Current flows between the electrodes when a conductor, such as wine, contacts both of the electrodes. However, conductivity sensors must make contact with the wine in the wine barrel. As a result, the conductivity sensors may corrode over time due to contact with the acids in the wine and flow of electricity through the electrodes. Additionally, the conductivity sensor can only output a Boolean value indicating whether the wine has reached the conductivity sensor or not reached the conductivity sensor. Thus, the conductivity sensor can not be calibrated without physically altering the location of the conductivity sensor.

BRIEF SUMMARY OF THE INVENTION

[0005] According to one embodiment of the disclosure, a handheld controller for filling a container with a liquid includes a removable tube having an opening at an end farthest from the handheld controller for receiving the liquid. The handheld controller also includes a pressure sensor for measuring a pressure in the removable tube. The handheld controller further includes a microprocessor coupled to the pressure sensor. The microprocessor is configured to receive from the pressure sensor a calibrated pressure level corresponding to a desired level for filling the container with the liquid. The microprocessor is further configured to operate a pump for flowing the liquid into the container while the current pressure level is less than the calibrated pressure level.

Further includes measuring a pressure level with the pressure sensor in a tube inserted in the liquid. The method also includes deactiavating the pump when the measured pressure level is substantially similar to the calibrated pressure level.

[0007] According to yet another embodiment of the disclosure, a system for filling wine barrels with wine includes a handheld controller for filling a container with a liquid having a removable tube having an opening at an end farthest from the handheld controller for receiving liquid. The handheld controller also includes a pressure sensor for measuring a pressure in the removable tube. The handheld controller further includes a microprocessor coupled to the pressure sensor. The microprocessor is configured to receive from the pressure sensor a calibrated pressure level corresponding to a desired level for filling the container with the liquid. The microprocessor is also configured to receive from the pressure sensor a current pressure level corresponding to a current level of the liquid in the container. The microprocessor is further configured to operate a pump for flowing liquid into the container while the current pressure level is less than the calibrated pressure level. The system also includes a control unit coupled to the handheld controller and coupled to the pump for receiving instructions from the handheld controller for operating the pump.

[0008] The foregoing has outlined rather broadly the features and technical advantages of the present disclosure in order that the detailed description that follows may be better understood. Additional features and advantages will be described hereinafter which form the subject of the claims of the disclosure. It should be appreciated by those skilled in the art that the conception and specific embodiments disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present disclosure. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the technology of the disclosure as set forth in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawings.

[0010] FIG. 1 is a block diagram illustrating an exemplary system for filling wine barrels in a winery according to one embodiment.

[0011] FIG. 2A is a block diagram illustrating an exemplary handheld controller for filling wine barrels in a winery according to one embodiment.

[0012] FIG. 2B is an illustration showing an adjustable rack for placing an exemplary handheld controller on a wine barrel according to one embodiment.

[0013] FIG. 3 is a block diagram illustrating an exemplary wireless system for filling wine barrels in a winery according to one embodiment.

[0014] FIG. 4 is a flow chart illustrating operation of an exemplary system for filling wine barrels according to one embodiment.
FIG. 5 is a flow chart illustrating operation of an exemplary system for filling wine barrels with a timer according to one embodiment.

FIG. 6 is a flow chart illustrating calibration of an exemplary system for filling wine barrels according to one embodiment.

FIG. 7 is a flow chart illustrating testing of an exemplary system for filling wine barrels according to one embodiment.

DETAILED DESCRIPTION OF THE INVENTION

Wine barrels may be filled with a handheld controller for measuring the liquid level inside a wine barrel and operating a pump for flowing wine into the wine barrels. A user of the handheld controller places a dip tube into the barrel. A pressure sensor in the handheld controller measures a liquid level in the wine barrel and is coupled to a control box. The control box is directed by the handheld controller to activate and deactivate the pump based on the detected level in the wine barrel by the pressure sensor. The handheld controller allows an operator to fill wine barrels of higher throughput than by manual operation and reduces or eliminates overflow of wine from the wine barrels during filling of the wine barrels. Although an exemplary illustration is described for filling wine in wine barrels, the handheld controller may be used to fill any container with liquid. For example, the handheld controller may be used to fill water, whiskey, and petroleum products in liquid containers.

FIG. 1 is a block diagram illustrating an exemplary system for filling wine barrels in a winery according to one embodiment. A wine filling system 100 includes a wine tank 102 having wine 106. The wine tank 102 couples to a pump 112 through a line 108. The line 108 may include a valve 104. According to one embodiment, the valve 104 is manually controlled to shut off flow of the wine 106 from the wine tank 102 to the pump 112. The pump 112 may be a three-phase alternating current (AC) electric motor. Alternatively, the pump may be an electric pump powered by a direct current (DC) power supply. The pump 112 couples to a power supply through a cable 114. The pump 112 couples to a line 116 for flowing the wine 106 into a wine barrel 124 through an opening 128. The line 116 may include a valve 118. A handheld controller 130 includes a dip tube 132 for placement in the wine barrel 124 through the opening 128. According to one embodiment, the dip tube 132 enters the wine barrel 124 through the same opening as the line 116 for filling the wine barrel 124. The dip tube may be used for measuring a level of wine in the wine barrel 124. The handheld controller 130 couples to a control box 140 through a cable 134. The control box 140 includes a receptacle 142 for coupling to the pump 112 and an electric plug 146 that provides a power source (not shown). The control box 140 activates or deactivates the pump 112 based, in part, on input received from the handheld controller 130. According to one embodiment, the control box 140 includes contactors (e.g., relays) (not shown) for coupling the pump 112 to a power supply. The control box 140 may also include a stop button 144.

According to one embodiment, the handheld controller 130 operates to control filling of the wine barrel 124 with the wine 106 through the line 116 by the pump 112. The handheld controller 130 may activate the pump 112 by signaling the control box 140. The handheld controller then measures the pressure in the dip tube 132. The measured pressure corresponds to a wine level in the wine barrel 124. When the wine level in the wine barrel 124 as measured by the dip tube 132 reaches a desired level, the handheld controller indicates to the control box 140 through the cable 134 to deactivate the pump 112. According to one embodiment, the handheld controller 130 may include a display (not shown) for displaying to the operator a measured pressure in the dip tube 132 or a current fill level in the wine barrel 124. A more detailed description of an embodiment of the handheld controller 130 is provided in FIG. 2.

The handheld controller 130 and the control box 140 may be adapted to fit different filling systems. For example, the control box 140 may be configured with different receptacles 142 to fit different pumps 112. According to one embodiment, the control box 140 and the handheld controller 130 may be adapted to fit an existing wine barrel filling system such that automatic control capability for filling the wine barrel 124 with the wine 106 may be added to existing wine barrel filling systems. Adapting existing wine barrel filling systems reduces cost to the operator by making use of existing equipment.

According to one embodiment, the handheld controller 130 and the control box 140 may be attached to a moveable rack. The moveable rack may be moved between several locations having wine barrels for filling with wine. The moveable rack may include an extension that allows the user to extend the handheld controller 130 to fill stacked wine barrels. The moveable rack may also include an adjustable angle rack (not yet shown) for the handheld controller 130 to allow the dip tube 132 access to sloped openings in wine barrels. According to one embodiment, the angle of slope for the handheld controller 130 is 36 degrees.

FIG. 2A is a block diagram illustrating an exemplary handheld controller for filling wine barrels in a winery according to one embodiment is shown. A handheld controller 130 includes a casing 202 such as, for example, plastic. The handheld controller 130 may also include light emitting diode (LED) lights 204, input buttons 232, and an input control 234. The input control 234 may be, for example, a knob for indicating a timer value. The input buttons 232 may include, for example, a start and a stop button. Additionally, a receptor 208 is attached to the casing 202 for accepting interchangeable dip tubes 132. The dip tube 132 includes an opening 214 exposing a hollow region inside the dip tube 132. According to one embodiment, a marker 240 is placed on the dip tube 132 to indicate a desired level for wine in a wine barrel. According to another embodiment, the marker 240 is used to indicate a calibrated wine level for filling wine barrels. In yet another embodiment, the marker 240 is used to mark an insertion point for placement of the dip tube 132 into a wine barrel to improve accuracy of filling wine barrels.

According to one embodiment, the handheld controller 130 may include an adjustable rack 250 for resting the handheld controller 130 on a wine barrel while allowing the dip tube 132 access to a wine barrel opening. FIG. 2B is an illustration showing an adjustable rack for placing an exemplary handheld controller on a wine barrel according to one embodiment. The adjustable rack 250 of the handheld controller 130 rests against the wine barrel 124 allowing the dip tube 132 to enter the opening 128 for measuring a liquid level in the wine barrel 124.

FIG. 25 Referring again to FIG. 2A, the handheld controller 130 includes a pressure sensor 224 coupled to the dip tube 132 to measure the pressure in the dip tube 132. According to one embodiment, the pressure sensor 224 is an electronic solid state pressure sensor. The pressure sensor 224 may be coupled to a microprocessor 222 configured to interpret signals from the pressure sensor. Additionally, the microprocessor 222 may be configured to accept inputs from an operator through input buttons 232 and input control 234, and provide
feedback to the operator through the lights 204. The microprocessor 222 may be configured to execute operations based on the received inputs from the input buttons 232 and input control 234. For example, the microprocessor 222 may be configured to execute a wine barrel filling operation, to execute a level calibration operation, and to execute a leak test operation. Exemplary flow charts illustrating configurations for the microprocessor 222 of the handheld controller 130 are described with reference to FIGS. 4, 5, 6, and 7.

[0026] The handheld controller 130 signals external circuitry through the cable 134. According to one embodiment, the handheld controller signals the control box 140 through the cable 134 to activate or deactivate a pump operating to fill wine barrels. According to another embodiment, the handheld controller 130 may connect to a pump for direct control of the pump.

[0027] The receptor 208 of the handheld controller 130 allows the dip tube 132 to be removed and interchanged with another dip tube. For example, if the dip tube 132 becomes damaged or corroded the dip tube 132 may be removed and replaced with a new dip tube 132. Additionally, the dip tube 132 may be replaced with a new dip tube 132 having a different size or length. Different lengths and sizes of dip tubes 132 may be selected for the handheld controller 130 according to the size of the wine barrel 124. For example, a dip tube of 12 inches in length may be used for a 5 gallon wine barrel, and a dip tube of 4 inches in length may be used for a 10 gallon wine barrel. However, dip tubes of the same length may be used for different barrel sizes. The handheld controller 130 may be separately calibrated for each size of the dip tube 132. According to one embodiment, the microprocessor 222 remembers different calibration pressures corresponding to fill levels for different size barrels.

[0028] FIG. 3 is a block diagram illustrating an exemplary wireless system for filling wine barrels in a winery according to one embodiment. A system 300 includes a wireless handheld controller 330 having an antenna 336. The system 300 also includes a control box 340 having an antenna 344. The control box 340 receives signals from the handheld controller 330 through a wireless connection 334. According to one embodiment, the wireless connection 334 is a radio frequency (RF) connection having a proprietary signaling system. According to another embodiment, the wireless connection 334 is a connection such as Bluetooth, Zig-bee, Infrared (IR), IEEE 802.11 (WiFi), IEEE 802.16 (WiMax), channel division multiple access (CDMA), time division multiple access (TDMA), or orthogonal frequency-division multiplexing (OFDM). The control box 340 may also include an emergency stop button 348 for manually deactivating the pump 112.

[0029] FIG. 4 is a flow chart illustrating operation of an exemplary system for filling wine barrels according to one embodiment. The microprocessor 222 of the handheld controller 130 may be configured to execute the flow chart of FIG. 4. A flow chart 400 begins at block 410 with checking if the wine filling system is ready. Block 410 may include, for example, checking the operational status of the pressure sensor 224 in the handheld controller 130 and checking a connection with the control box 140. According to one embodiment, in a wireless system the handheld controller may establish the wireless connection 334 between the handheld controller 330 and the control box 340. The microprocessor 222 may indicate system ready to the operator of the handheld controller 130 by activating a green LED of the lights 204.

[0030] At block 412, the microprocessor 222 waits for an operator to depress a start button. After the start button is depressed, at block 414 the microprocessor 222 activates the pump 112 to flow the wine 106 into the wine barrel 124. The microprocessor 222 may indicate to the operator of the handheld controller 130 the pumping of wine by flashing the green LED of the lights 204. The microprocessor 222 then measures the pressure in the dip tube 132 at block 416. At block 418, the microprocessor 222 determines if the measured pressure is approximately equal to the calibrated pressure. According to one embodiment, the microprocessor 222 determines if the absolute value of the result of subtracting the measured pressure from the calibrated pressure is below a threshold value. According to another embodiment, the microprocessor 222 determines if the measured pressure exceeds the calibrated pressure.

[0031] If the measured pressure is approximately equal to the calibrated pressure, the microprocessor 222 proceeds to block 420 and stops flow of the wine 106 into the wine barrel 124. The microprocessor 222 may indicate to the operator of the handheld controller 130 completion of filling of the wine barrel 124 by returning the green LED of the lights 204 to a steady glow. If the measured pressure is not approximately equal to the calibrated pressure, the microprocessor 222 proceeds to block 416. The microprocessor 222 may repeat blocks 416 and 418 until the measured pressure is approximately the calibrated pressure.

[0032] Another embodiment for filling wine barrels including a timer is illustrated in the flow chart of FIG. 5. The microprocessor 222 of the handheld controller 130 may be configured to execute the flow chart of FIG. 5. A flow chart 500 begins at block 510 with inputting a time limit. The time limit may be received by the microprocessor 222 from the operator from an input control 234. The microprocessor 222 continues to block 512 with checking if the wine filling system is ready. At block 514, the microprocessor 222 waits for an operator to depress a start button.

[0033] After the start button is depressed, the microprocessor 222 proceeds to block 516 to start flowing the wine 106 into the wine barrel 124. The microprocessor 222 also starts a timer for measuring the time of filling the wine barrel 124. The microprocessor 222 proceeds to block 518 to measure the pressure in the dip tube 132. If the measured pressure is approximately equal to the calibrated pressure, the microprocessor 222 proceeds to block 524 and stops the flow of the wine 106 into the wine barrel 124. If the measured pressure is not approximately equal to the calibrated pressure, the microprocessor 222 proceeds to block 522 to determine if the timer exceeded the input time limit. If the timer exceeds the input time limit, the microprocessor 222 proceeds to block 524 and stops the flow of the wine 106 into the wine barrel 124. If the timer does not exceed the input time limit, the microprocessor returns to block 518. The microprocessor 222 may continue to loop through blocks 518, 520, and 522 until the measured pressure is approximately equal to the calibrated pressure or the timer exceeded the input time limit.

[0034] Timing the wine filling as illustrated in FIG. 5 may be useful for preventing overflow of wine barrels due to sensor malfunction. For example, if the pressure sensor 224 of the handheld controller 130 malfunctions, the wine 106 may overflow from the wine barrel 124 until an operator recognizes the error and manually stops flow of the wine 106. The timer may be set by an operator to an approximate time for filling the barrel such that the handheld controller 130 stops after a certain period of time to prevent overflow of the wine 106 from the wine barrel 124 if the pressure sensor 224 malfunctions.

[0035] FIG. 6 is a flow chart illustrating calibration of an exemplary system for filling wine barrels according to one embodiment. The microprocessor 222 of the handheld con-
controller 130 may be configured to execute the flow chart of FIG. 6. A flow chart 500 begins at block 602 with the microprocessor 222 waiting for the stop button to be depressed and held depressed for five seconds. According to one embodiment, calibration mode of the handheld controller 130 is entered by holding the stop button for five seconds. According to another embodiment, a calibration button may be located on the handheld controller 130 for entering calibration mode. The microprocessor 222 may indicate to the operator of the handheld controller 130 calibration mode has begun by flashing a red LED of the lights 204 five times.

[0036] The microprocessor 222 continues to block 604 to measure a pressure in the dip tube 132. The microprocessor 222 may indicate to the operator of the handheld controller 130 the measured pressure at block 604 by scaling the intensity of the red LED of the lights 204. If the microprocessor 222 measures saturation of the pressure sensor 224, the microprocessor 222 may blink the red LED of the lights 204 to notify the operator of the handheld controller 130. At block 606 the microprocessor 222 checks if the stop button has been depressed to indicate the end of calibration operation. If the stop button has not been depressed, the microprocessor 222 continues to block 604. If the stop button has been depressed, the microprocessor 222 continues to block 608 to determine if the measured pressure is greater than a minimum pressure (e.g., not under range) and less than a maximum pressure (e.g., not saturated).

[0037] If the measured pressure is under range or saturated the microprocessor 222 notifies the operator of the handheld controller 130 by rapidly flashing the red LED of the lights 204 and continues to block 604 to measure the pressure. When the measured pressure is under range or saturated the microprocessor 222 does not alter the previously stored calibrated pressure. If the measured pressure is in an appropriate range, the microprocessor 222 continues to block 610 and rapidly flashes the green LED of the lights 204 and store the measured pressure as the calibrated pressure.

[0038] Calibration of the handheld controller 130 may be performed by an operator by placing the dip tube 132 in a test liquid container with a desired fill level. The calibration routine of the microprocessor 222 may be executed to store the desired fill level of test liquid container as the calibrated pressure of the handheld controller 130. According to one embodiment, the handheld controller 130 is calibrated by placing the dip tube 132 in a graduated cylinder filled with liquid to a desired level and executing the calibration routine. According to another embodiment, the handheld controller 130 is calibrated by placing the dip tube 132 in the wine barrel 124 after filling the wine barrel 124 with the wine 106 to a desired level and executing the calibration routine.

[0039] FIG. 7 is a flow chart illustrating testing of an exemplary system for filling wine barrels according to one embodiment. The microprocessor 222 of the handheld controller 130 may be configured to execute the flow chart of FIG. 7. According to one embodiment, the microprocessor 222 may be configured to enter a leak test routine when the stop button is depressed and held followed by depressing the start button. According to another embodiment, the handheld controller 130 may include a leak test button for starting the leak test routine. At block 702, the microprocessor 222 waits for the stop button to be depressed and held. If the stop button is depressed and held, the microprocessor 222 proceeds to block 704 and waits for the start button to be depressed. If the start button is depressed, the microprocessor 222 continues to block 706 to measure a first pressure.

[0040] At block 708 the microprocessor 222 delays for a predetermined time such as, for example, ten seconds. The microprocessor 222 may indicate to the operator of the handheld controller 130 the leak test is in progress by alternating flashing of the green LED with the red LED of the lights 204. At block 710 the microprocessor 222 measures a second pressure. At block 712, the microprocessor 222 determines if a leak is present in the dip tube 132. According to one embodiment, the microprocessor 222 determines if a leak is present by determining if the absolute value of the result of subtracting the first pressure from the second pressure is less than a threshold amount. According to another embodiment, the microprocessor 222 determines if a leak is present by determining if the second measured pressure is lower than the first measured pressure.

[0041] If the microprocessor 222 determines a leak is present, the microprocessor 222 may continue to block 716 to indicate a test failure to the operator and to block 704 to begin a new leak test. If the microprocessor 222 determines no leak is present, the microprocessor 222 continues to block 714 to indicate to the operator the leak test passed. According to one embodiment, the microprocessor 222 indicates to the operator of the handheld controller 130 the leak test results by flashing the red LED or the green LED of the lights 204. According to one embodiment, if power to the handheld controller 130 is lost during a leak test, the handheld controller 130 automatically restarts the leak test when power is restored.

[0042] The handheld controller described above may be utilized by an operator to improve the throughput of filling wine barrels with wine or other liquid containers with liquids such as water, whiskey, or petroleum products. The handheld controller includes a removable dip tube for adapting the handheld controller to wine barrels or liquid containers of different sizes. The handheld controller may be calibrated to a pressure level in the dip tube corresponding to a desired fill level of the wine barrel or liquid container. During filling, the handheld controller measures the liquid level in the wine barrel or liquid container and activates or deactivates the pump to fill the wine barrel or liquid container to the desired level. The handheld controller may, for example, communicate with a control box for switching on or off relays coupling a pump to a power supply. The handheld controller and the control box may be adapted for use with a variety of pumps. Additionally, the handheld controller prevents overfilling of wine barrels or other liquid containers reducing or eliminating wasted product such as wine and reduces unsanitary or hazardous conditions.

[0043] Although the present disclosure and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the disclosure as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the special embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the present invention, disclosure, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present disclosure. For example, although operation with a microcontroller is described, one skilled in the art will recognize that equivalent functionality may be designed using various combinations of analog and/or digital circuitry. Accordingly, the appended claims are intended to include within their scope
such processes, machines, manufacture, compositions of matter, means, methods, or steps.

What is claimed is:

1. A handheld controller for operating a pump to fill a container with a liquid, comprising:
   a removable tube having an opening at an end furthest from the handheld controller for receiving the liquid;
   a pressure sensor for measuring a pressure in the removable tube; and
   a microprocessor coupled to the pressure sensor, in which the microprocessor is configured:
   to receive from the pressure sensor a calibrated pressure level corresponding to a desired level for filling the container with the liquid;
   to receive from the pressure sensor a current pressure level corresponding to a current level of the liquid in the container, and
   to operate the pump for flowing the liquid into the container while the current pressure level is less than the calibrated pressure level.

2. The handheld controller of claim 1, further comprising an adjustable rack for resting the handheld controller on the container.

3. The handheld controller of claim 1, further comprising a display coupled to the microprocessor, in which the microprocessor is further configured to operate the display to indicate when the current pressure level exceeds the calibrated pressure level.

4. The handheld controller of claim 1, in which the handheld controller operates the pump to fill a wine barrel with wine.

5. The handheld controller of claim 1, in which the microprocessor is further configured to operate a relay coupled to the pump and coupled to a power source for energizing the pump.

6. The handheld controller of claim 1, further comprising a wireless transmitter for communicating with the pump to control the flowing of liquid into the container.

7. The handheld controller of claim 1, in which the microprocessor is further configured to test the removable tube for leaks.

8. The handheld controller of claim 1, in which the microprocessor is further configured:
   to receive from an input device a shut-off time; and
   to deactivate the pump if the current pressure level does not reach the calibrated pressure level before the shut-off time has lapsed.

9. A method for automatically filling a container with a liquid to a desired level, comprising:
   receiving the desired level for the container from a pressure sensor corresponding to a calibrated pressure level;
   activating a pump for flowing the liquid into the container;
   measuring a pressure level with the pressure sensor in a tube inserted in the liquid;
   deactivating the pump when the measured pressure level is substantially similar to the calibrated pressure level.

10. The method of claim 9, in which receiving the desired level comprises placing the tube into a previously filled liquid container at the desired level and receiving from the pressure sensor the calibrated pressure level.

11. The method of claim 9, in which the tube is inserted in the liquid through an opening in the container along with a hose for flowing the liquid into the container.

12. The method of claim 9, further comprising audibly indicating when the measured pressure level is substantially similar to the calibrated pressure level.

13. The method of claim 9, further comprising visually indicating when the measured pressure level is substantially similar to the calibrated pressure level.

14. The method of claim 9, in which deactivating the pump comprises deactivating a relay to decouple the pump from a power source.

15. The method of claim 9, further comprising deactivating the pump if a shut-off time lapses.

16. A system for filling wine barrels with wine, comprising:
   a handheld controller for operating a pump to fill a container with a liquid, comprising:
   a removable tube having an opening at an end furthest from the handheld controller for receiving liquid;
   a pressure sensor for measuring a pressure in the removable tube; and
   a microprocessor coupled to the pressure sensor, in which the microprocessor is configured:
   to receive from the pressure sensor a calibrated pressure level corresponding to a desired level for filling the container with the liquid;
   to receive from the pressure sensor a current pressure level corresponding to a current level of the liquid in the container, and
   to operate the pump for flowing of liquid into the container while the current pressure level is less than the calibrated pressure level; and
   a control unit coupled to the handheld controller and coupled to the pump for receiving instructions from the handheld controller for operating the pump.

17. The system of claim 16, in which the control unit is coupled to the handheld controller through a wireless communication system.

18. The system of claim 16, in which the control unit comprises a relay for coupling the pump to a power source, the relay under control of the handheld controller.

19. The system of claim 16, in which the microprocessor is further configured:
   to receive from an input device a shut-off time; and
   to deactivate the pump if the current pressure level does not reach the calibrated pressure level before the shut-off time has lapsed.

20. The system of claim 16, in which the system for filling wine barrels with wine is attached to a movable rack.