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(71) Applicants  
Charles Peter Lilley,  
C/o Optic Repair Service, 662 Leek New Road, Milton,  
Stoke-on-Trent, Staffordshire  
Lynne Christine Jackson,  
C/o Optic Repair Service, 662 Leek New Road, Milton,  
Stoke-on-Trent, Staffordshire

(72) Inventor  
Charles Peter Lilley

(74) Agent and/or Address for Service  
Swindell & Pearson, 44 Friar Gate, Derby DE1 1DA

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B8N  
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## (54) Counting arrangement for drinks dispenser

(57) A dispensing and counting arrangement for a drinks measure includes known valve means 30 and dispensing means 22 and incorporates electronic means for counting the number of drinks dispensed, the counting means being actuated by movement of the valve means on dispensing a measured drink. A display 51 shows the number of drinks counted and zeroing means, security means and means for inhibiting counting when no liquid is supplied are incorporated in the arrangement. Magnet 60 on stand 34 co-acts with reed switch 58 to enable counting only when the device is mounted on the stand; magnet 30 co-acts with reed switch 56 to count the number of dispenses; 62 is a zeroing switch, and probes may sense liquid presence in chamber 12 to inhibit counting when liquid is absent.

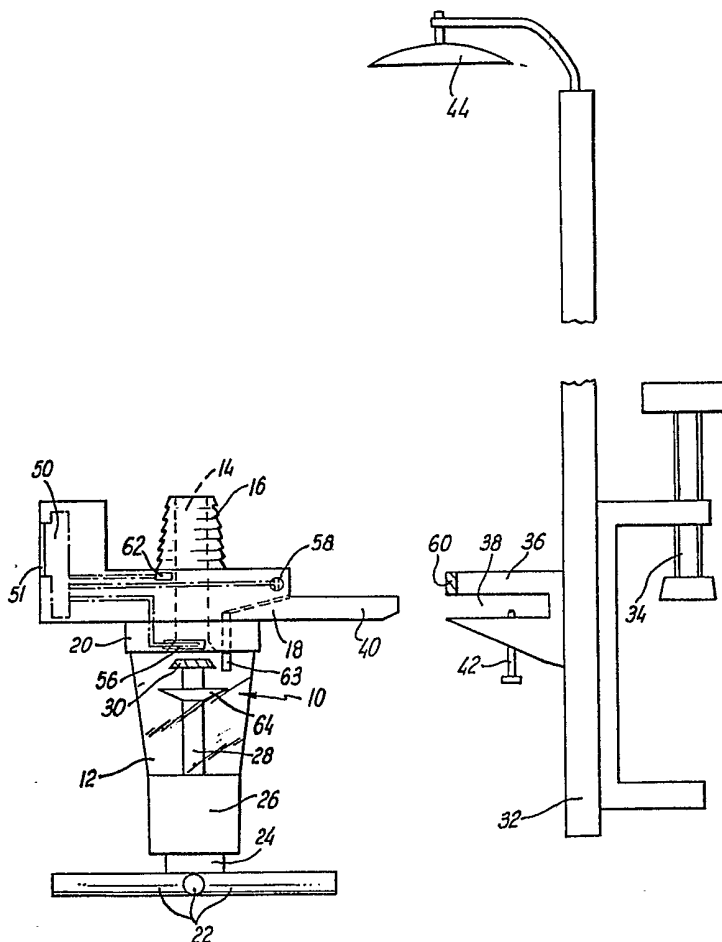
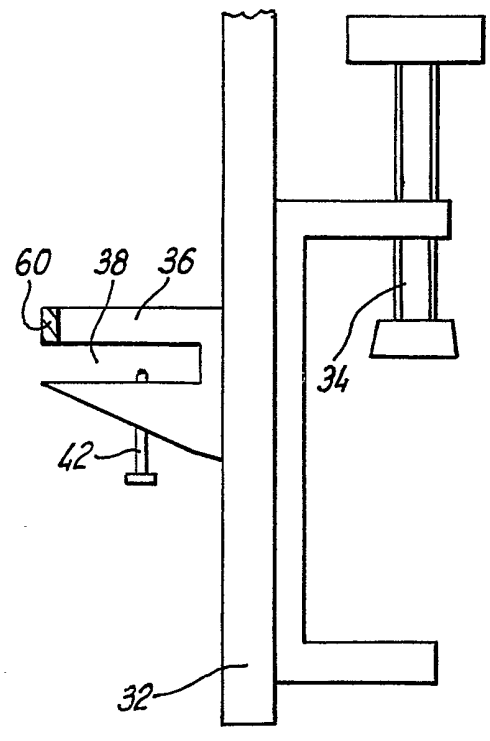
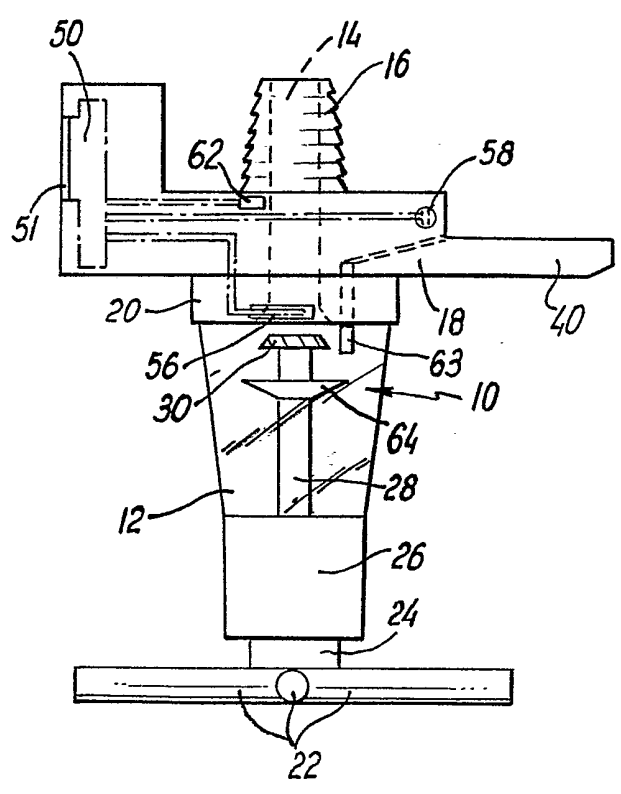
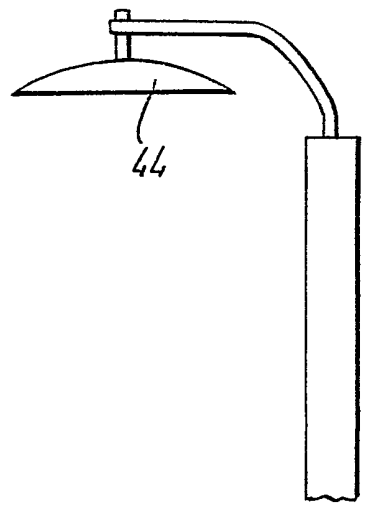


FIG. 1

1/2



**FIG. 1**

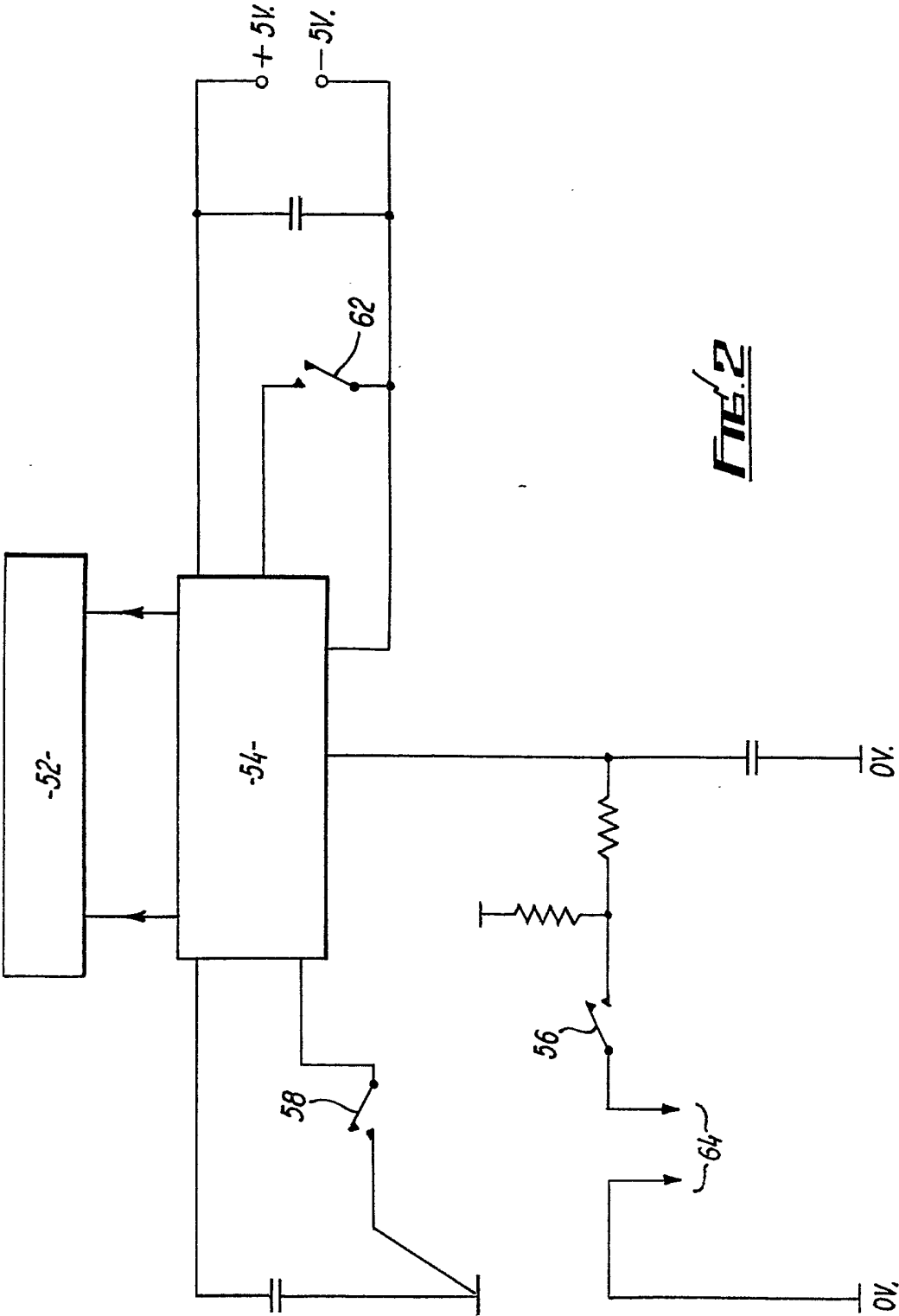


FIG. 2

## SPECIFICATION

**Improvements in or relating to dispensing and counting arrangements**

5 The present invention concerns improvements in or relating to dispensing and counting arrangements, especially but not exclusively arrangements for dispensing drinks, for example wines and spirits, and for counting the number of drinks dispensed and retaining this information in a tamper-proof manner.

10 The present invention utilises a standard liquid measure, that is a measure which is intended to receive an inverted container of liquid to be dispensed, includes a chamber of known volume and valve means which, on actuation, dispense the known volume of liquid from the chamber and on returning to its initial rest position admits a further charge of liquid into the chamber from the bottle.

15 It is advantageous in licenced premises to be able to count the number of drinks dispensed by such a spirit or liquid measure utilising a counter which is essentially tamper-proof.

20 According to the present invention there is provided a dispensing and counting arrangement comprising an automatic liquid measure and counting means operable on each operation of measure actuating means.

25 Preferably the counting means are electronic and are actuated by a switch means which is moved to close or open a circuit of the counting means by movement of the measure actuating means.

30 Preferably a magnet carried by said actuating means is arranged such that at or near the limit of a dispensing movement of the actuating means it operates the switch means which comprises a magnetic reed switch.

35 Preferably the arrangement is provided with mounting means comprising two interfitting parts, the first being attached to a fixing member for the arrangement, the other being attached to the arrangement.

40 Preferably said first and second parts of the mounting means are uniquely and complementarily shaped and dimensioned.

45 Preferably the part of the mounting means attached to the fixing member incorporates a magnet which operates a magnetic reed switch mounted on the measure only when the measure is located on the said mounting part, the reed switch being included in the circuitry of the electronic counter whereby said counter functions only when the measure is mounted on said mounting means.

50 Preferably a further switch is incorporated in the counter circuitry to facilitate zeroing of the electronic counting device. This further switch may be a concealed magnetic reed switch or a mechanically operated switch.

55 An embodiment of the present invention will now be described by way of example only with reference to the accompanying diagrams, in which:-

60 *Figure 1* shows an elevation of a dispensing and

counting arrangement for liquid and a stand and bottle support therefor; and

*Figure 2* shows a circuit diagram of an electronic counter for the arrangement shown in *Figure 1*.

70 An automatic spirit or liquid dispenser 10 comprises a chamber 12 of predetermined volume manufactured from a transparent material so that liquid to be dispensed from the chamber can be observed. An inlet passage 14 to the chamber passes through a bottle stopper 16, adapted to receive a bottle from which the contents are to be dispensed in an inverted manner, and a mounting body 18 to be described in greater detail below. The spirit or liquid measure 10 is of standard construction and comprises a threaded mounting collar 20 by means of which it is fixed to the body 18 and a three-legged spider 22 fixed to the bottom of a plunger assembly 24 which is mounted in the base 26 which, in normal manner, incorporates dispensing valve means (not shown). The plunger assembly 24 has an upward extension 28 terminating in a valve member 30, adapted on movement of the plunger 24 into the body 26, to seat against the lowermost end of the inlet passage 14 to prevent further flow of liquid into the dispenser and to operate a hollow valve 63 by means of a flange 64 to allow air to be admitted into the transparent chamber to allow the liquid to flow out of the dispenser.

80 Thus, with the dispenser in the condition shown in *Figure 1* when a bottle of liquid is placed in an inverted manner on the dispenser with the stopper 16 firmly positioned in the neck of the bottle the contents will flow out of the bottle through the inlet passage 14 and past the valve member 30 to fill the chamber 12. In view of the transparent nature of the walls of the chamber it can be readily determined by an observer that the chamber is completely filled. When it is desired to dispense a drink a glass or other container is pushed against the three legs of the spider 22 which cause the plunger 24 to move into the dispenser with the result that the valve member 30 seats against the lowermost end of the passage 14 to prevent ingress of liquid from the bottle into the chamber 12 while the contents thereof are exhausting from the compartment by way of the valve means in the body 26 and the central passage through the spider 22. When the compartment 12 can be seen to be emptied the glass can be removed thereby releasing the plunger and allowing the chamber to be refilled.

90 Conveniently, the dispenser and bottle are mounted on a stand assembly 32 which, by means of a clamp 34 fixed thereto, can be mounted on a gantry or shelf. The stand has a mounting member 36 having a slot 38 therein adapted to receive a finger 40 projecting rearwardly from the body 18 of the dispenser. Conveniently the slot 38 and finger 40 are made of complimentary shapes so that they neatly interfit and so that any attempt to fit a dispenser having a differently shaped finger 40 will not be successful. To maintain the finger 40 in the slot 38 there is provided a spring urged locking plunger 42. A spring urged bottle base holder 44 is slidably mounted at the upper end of the frame 32.

100 The present invention provides means for count-

ing the number of drinks dispensed, that is the number of times the plunger is moved upwardly so that the valve 30 seats at the end of the passage 14. Figure 2 shows a circuit diagram of a liquid crystal display counter 50 which is mounted in the body 18 behind a clear plastics screen 51 and is shown only diagrammatically in Figure 1. The display and the electric counting means comprises two integrated circuit chips 52, 54 as can be seen from Figure 2. To give a signal to the counter chip 54 there is provided a magnetic reed switch 56 mounted in or at the lower end of the inlet passage 14. To actuate the reed switch 56 the valve member 30 takes the form of a permanent magnet. It will be realised, therefore, that with the circuitry actuated and powered by a small dry cell battery (not shown) mounted in the body 18 on moving the plunger upwardly to close off the inlet passage 14 and allow a drink to be dispensed the contacts of the reed switch are closed by means of the magnet a signal is detected by the counting circuit and passed to the display circuit to cause a progressively increasing number to be displayed on the digital display 50.

In an attempt to reduce the opportunity to tamper with the count on the dispenser the circuit includes means whereby counting is inhibited until the dispenser is mounted on the stand 32. Again a magnetic reed switch 58 is utilised, the contacts of this switch being closed by a permanent magnet 60 fixed to the end of the clamp 36 of the bottle stand 32. From this description the importance of the mutually compatible fitting of the finger 40 within the slot 38 will be realised. If a dispenser which is not matched to the bottle stand 32 is used, then in view of the unique complimentary shapes of the slot 38 and finger 40 the possibility of the bottle and dispenser being mounted on the stand 32 is extremely remote. As an additional security measure the polarity of the permanent magnet 60 can be arranged such that it is compatible with one mode of operation of the reed microswitch 58, i.e. a South attracted reed switch.

The body member 18 may also mount a reset sub-miniature microswitch 62 which may be operable by a special tool or key to enable a stock controller, for example, to reset the counter. A low liquid inhibit switch may also be incorporated to prevent counting when the chamber 12 is not refitted from the bottle, e.g. when the bottle has been emptied. It comprises two probes 64 (not shown in Figure 1) inserted in the chamber and connected in series with the reed switch 56. When the liquid level in the chamber 12 falls below the probes the apparatus will not count.

Various modifications can be made without departing from the scope of the invention, for example the magnetic reed switches may be replaced by proximity switches, microswitches, etc. Additionally, the optical dispenser may take any convenient form. The counter display may be altered, for example, it may be smaller than that shown in the drawing. Further, the signal from the counting circuit need not be transferred to an optical display but could be fed, for example, into a computer

whereby a centralised stock control could be achieved.

All passive components and separated integrated circuits may be incorporated onto a single integrated circuit component (chip) and/or fitted onto the L.C.D. counter module.

## CLAIMS

1. A dispensing and counting arrangement comprising an automatic liquid measure and counting means operable on each operation of measure actuating means.
2. An arrangement as claimed in claim 1, in which the counting means are electronic and are actuated by a switch means which is moved to close or open a circuit of the counting means by movement of the measure actuating means.
3. An arrangement as claimed in claim 2, in which a magnet carried by said actuating means is arranged such that at or near the limit of a dispensing movement of the actuating means it operates the switch means which comprises a magnetic reed switch.
4. An arrangement as claimed in any one of claims 1 to 3, provided with mounting means comprising two interfitting parts, the first being attached to a fixing member for the arrangement, the other being attached to the arrangement.
5. An arrangement as claimed in claim 4, in which said first and second parts of the mounting means are uniquely and complementarily shaped and dimensioned.
6. An arrangement as claimed in claim 4 or claim 5, in which the part of the mounting means attached to the fixing member incorporates a magnet which operates a magnetic reed switch mounted on the measure only when the measure is located on the said mounting part, the reed switch being included in the circuitry of the electronic counter whereby said counter functions only when the measure is mounted on said mounting means.
7. An arrangement as claimed in any one of claims 2 to 6, in which a switch is incorporated in the counter circuitry to facilitate zeroing of the electronic counting device.
8. An arrangement as claimed in claim 7, in which the zeroing switch is a concealed magnetic reed switch or a mechanically operated switch.
9. An arrangement as claimed in any one of claims 2 to 8, in which a liquid level sensor is provided in the chamber to detect the absence of liquid therein, the said sensor including two probes connected in series with said counting switch means.
10. A dispensing and counting arrangement substantially as hereinbefore described with reference to the accompanying drawings.

11. Any novel subject matter or combination including novel subject matter disclosed in the foregoing specification or claims and/or shown in the drawings, whether or not within the scope of or relating to the same invention as any of the preceding claims.

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