(12) UK Patent Application (19) GB (11) 2 349 451 (13) A

(43) Date of A Publication 01.11.2000

(21) Application No 9915818.0

(22) Date of Filing 06.07.1999

(71) Applicant(s)
Denis Douglas
1 Bertrand Street, Lewisham, LONDON, SE13 7AX, United Kingdom

Kevin Douglas
1 Bertrand Street, Lewisham, LONDON, SE19 7AX, United Kingdom

(72) Inventor(s)
Denis Douglas
Kevin Douglas

(74) Agent and/or Address for Service
Miller Sturt Kenyon
9 John Street, LONDON, WC1N 2ES, United Kingdom

(51) INT CL[7]
G09F 23/04

(52) UK CL (Edition R)
F4R RAG R332 R336 R417
G5C CFF

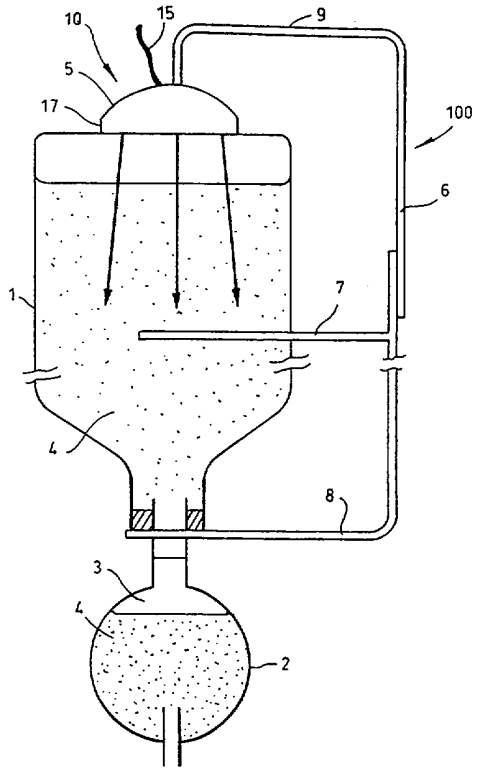
(56) Documents Cited
GB 2005451 A **WO 98/18116 A1**

(58) Field of Search
UK CL (Edition Q) **F4R RAG , G5C CFF**
INT CL[6] **B67D 1/08 3/00 , F21V 33/00 , G09F 13/20 13/22 23/00 23/02 23/04**
ONLINE: EPODOC, JAPIO, WPI.

(54) Abstract Title
Liquor dispensing apparatus with liquor bottle illuminating means

(57) Apparatus for holding and displaying a bottle (1) in an inverted position, comprising a main support member (6) having means (8) for retaining the neck-end portion of a bottle (1) and means (5, 9) for retaining the base of a bottle (1), the means for retaining the base of a bottle comprising a cap (5), characterised in that the cap (5) is provided with a light emitting component (13, Figure 3) arranged to illuminate the base of a bottle (1) held by the apparatus.

Fig.1.



GB 2 349 451 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

Fig.1.

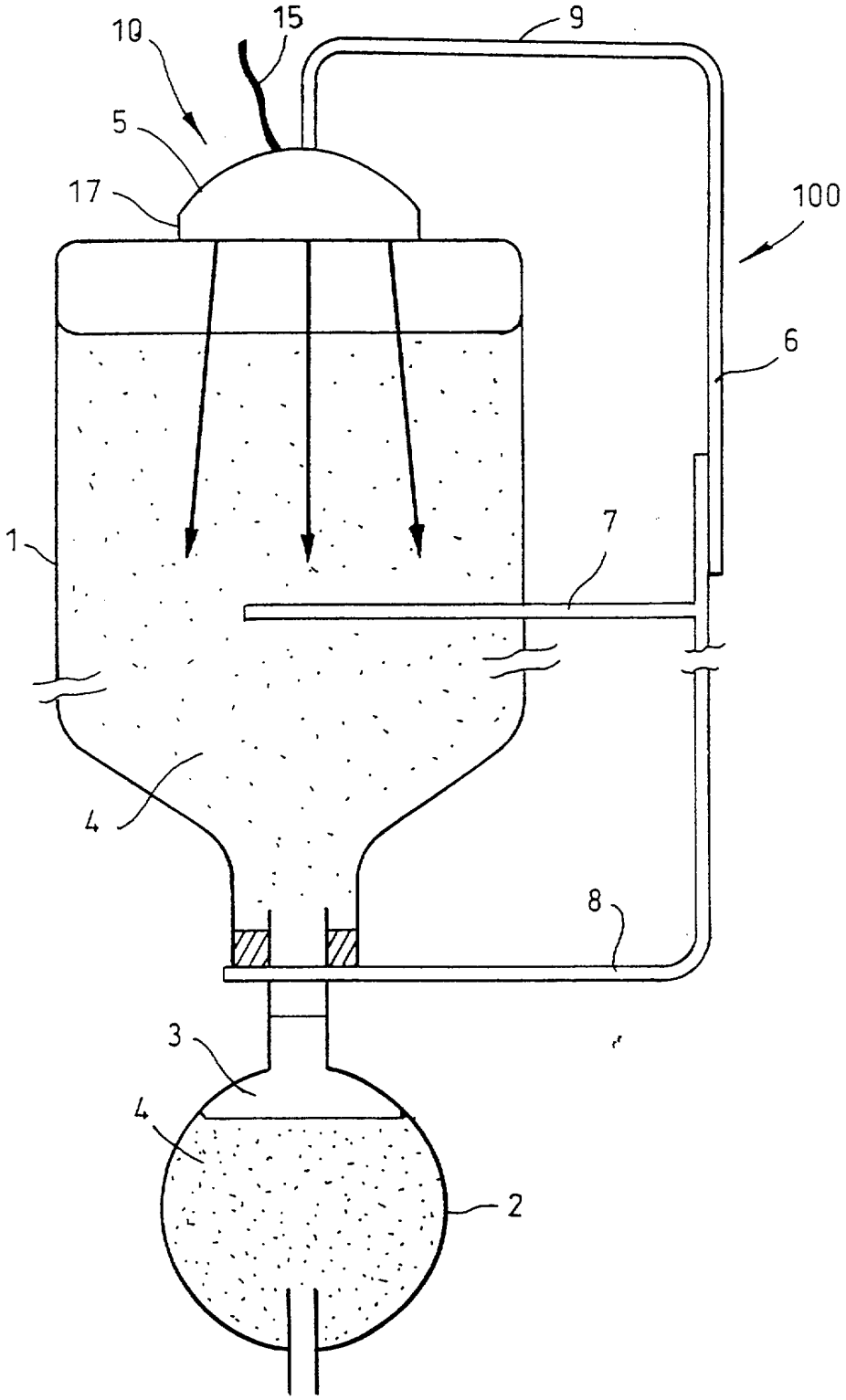


Fig.2.

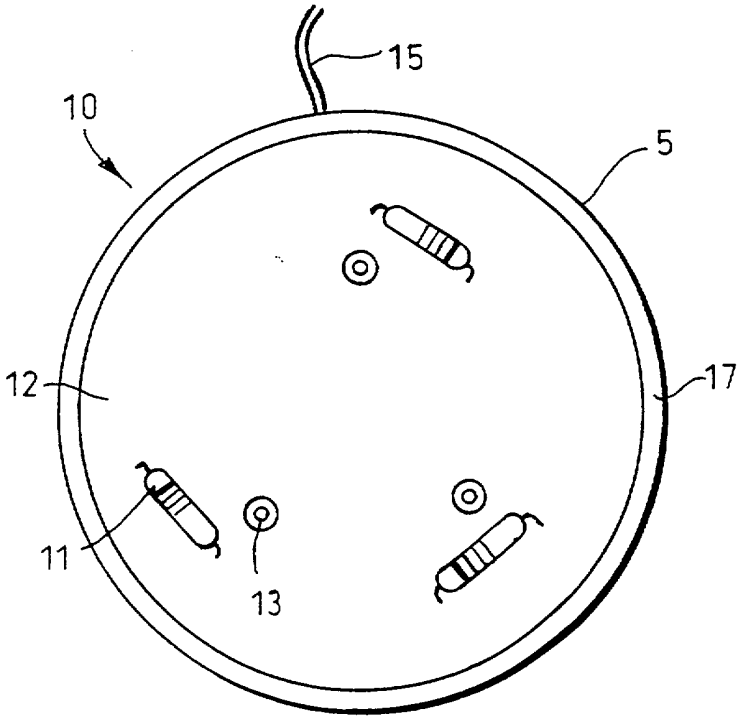
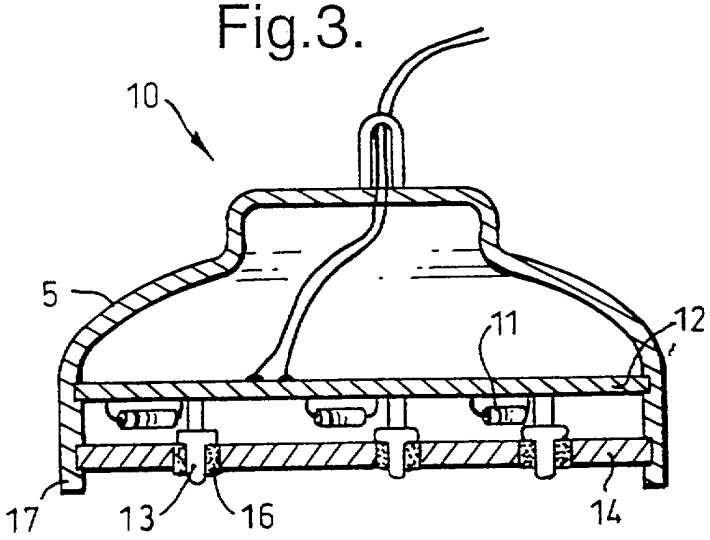


Fig.3.



APPARATUS FOR HOLDING A BOTTLE

The present invention relates to an apparatus for holding and displaying a bottle, for example a bottle containing a drink, particularly a "spirit" such as whiskey, and as used with a so-called "optic" for dispensing the drink in a specific measured quantity.

It is common practice in public houses and bars to present bottles containing a spirit, cordial or other drink in an inverted position and to dispose an optic in the opening of the bottle. The optic provides a fast and convenient method of dispensing a specific measured quantity of the drink into a glass. The bottles are arranged so as to be clearly displayed to customers so as to assist in their selection of a particular drink. Thus, in addition to the convenience of the optic (which requires the bottle to be held in an inverted position), the display of the bottle is very important. The display of the bottle can help entice customers to purchase a drink such as a spirit which is more expensive than other drinks such as beer. Also, of course, the display is important for enabling customers to select between different brands and to appreciate the choice available.

It is an object of the present invention to provide an apparatus for holding a bottle which enhances the display of the bottle.

According to the present invention there is provided an apparatus for holding and displaying a bottle in an inverted position, comprising a main support member having means for retaining the neck-end portion of a bottle and means for retaining the base of a bottle, the means for retaining the base of a bottle comprising a cap, characterised in that the cap is provided with a light emitting component arranged to illuminate the base of a bottle held by the apparatus.

The conventional apparatus for holding an inverted bottle for use with an optic

comprises a rubber cap or cup for holding the base of the bottle. This arrangement assists in the ease of replacement of the bottle when the contents thereof have been fully dispensed. In a preferred embodiment of the present invention the conventional rubber cup is replaced by a rubber cup which is not substantially larger or different in shape from the conventional component but which contains one or more light emitting diodes (LEDs) for illuminating the bottle and the content thereof. The full convenience of the conventional apparatus is maintained but the attractiveness of the display can be considerably and surprisingly enhanced.

Embodiments of the present invention will now be described by way of further example only and with reference to the accompanying drawings, in which:

Fig. 1 is a side view of a bottle, bottle holder and optic in accordance with an embodiment of the present invention.

Fig. 2 is an underside view of the bottle retaining cap shown in figure 1; and

Fig 3. is a cross-sectional view of the bottle retaining cap shown in figure 1.

An embodiment of the present invention is shown schematically in figures 1 to 3 of the drawings herewith. A bottle 1 containing a drink (liquid) 4 is held in an inverted position by means of a bottle holder 100. An optic 2 is disposed in the opening of the bottle, for measuring a quantity of the drink into a glass, by means of a transparent "measure" chamber 3.

In accordance with the common conventional apparatus, the bottle holder 100 comprises a vertical arm 6 of adjustable length (to accommodate bottles of different heights), a lower horizontal support 8, and a top horizontal support 9. Optionally, one or more horizontal arms 7 may be provided to provide for further retention of the bottle. The lower support 8 directly retains the neck-end portion of the bottle and the upper support 9 retains

the base of the bottle using a rubber cap 5. The vertical arm 6 may be sprung-loaded and a bottle 1 with an optic 2 inserted in the neck thereof is mounted on the bottle holder by extending the vertical arm 6 against the force of the spring (not shown) and sliding the bottle 1 between the horizontal arms 7. A portion of the optic 2, or the rim or neck of the bottle 1, is supported by the lower horizontal support 8. The force of the spring (not shown) acting to shorten the length of the vertical arm 6 clamps the bottle in position between the upper and lower supports 8 and 9 with the resiliency of the rubber cap 5 assisting this function and accommodating for the shape of the base of the bottle which usually is not flat but has at least a slight dome shape (not shown) towards the inside of the bottle.

In the illustrated embodiment of the present invention, the cap 5 is an open-ended, flexible rubber cup which forms a housing for one or more light emitting components. As shown in figures 2 and 3, a circular printed circuit board 12 is mounted in the housing 10, for example by seating in a groove provided on the internal surface of the housing. Mounted on the circuit board 12 is at least one light emitting diode (LED) 13, three LEDs 13 being shown in the present embodiment. Resistors 11 for regulating the power supply to respective LEDs are also provided on the circuit board 12.

A reflector plate 14 is also preferably provided in the housing 10. The reflector plate 14 is disposed between the printed circuit board 12 and the open end of the cap 5 such that the resistors 11 lie between the circuit board 12 and the reflector plate 14. An aperture is provided in the reflector plate 14 for each LED 13 and the reflector plate is mounted in the housing 10 by means of a groove provided on the inner surface of the housing. The LEDs 13 protrude through the apertures. A surface coating, for example a tin coating, may be provided on at least the side of the reflector plate 14 adjacent to the base of the bottle 1. The reflector plate 14 acts to direct light from the LEDs and/or to redirect light reflected from the

bottle back onto the base of the bottle. The reflector plate 14 may be planar or it may have a curved cross-section. A flange portion 17 of cap 5 extends beyond the reflector plate 14 in the direction of the open end of the cap, so as to contact the base of the bottle. Electrical cabling 15 is provided for connecting the circuit board 12 to a transformer (not shown) which is in turn connected to the mains power supply, for powering the LEDs 13. A convenient arrangement is provided by terminating the cabling 15 with a jack plug (not shown) which can be plugged into a power supply outlet adjacent the location of the bottle holder.

The majority of heat generated by in the housing 10 is generated by the resistors 11. The reflector plate 14 also serves to prevent heat generated by the resistors 11 from heating the bottle 1 and the liquid 4 therein. Rather, this heat is primarily dissipated through the rubber housing 10.

An LED socket mount 16 may be provided in each reflector plate aperture. The LED 13 is arranged to protrude through the socket mount 16, such that is surrounded and protected by the socket mount 16. The provision of the reflector plate 14 and the socket mounts 16 protects the LEDs 13 against breakage through contact with the bottle 1 or other objects and adds rigidity to the housing 10. Thus, the reflector plate 14 and socket mount 16 further enhance the safety and robustness of the apparatus.

In operation, light from the LEDs 13 is directed to the base of the bottle 1. The apparatus is particularly effective when used with a clear glass bottle containing a clear liquid. Of course, the colour of the light emitted by the LEDs can be chosen to give a desired effect. The colour can be chosen to complement or enhance the general colouring used to distinguish a particular drink or brand of drinks. In any event, the rays of light penetrating the liquid can provide a most attractive and appealing display. Needless to say, attention is particularly drawn to illuminated bottles which are clearly distinguished from unilluminated

bottles. Further, a particularly striking effect is generated by the reflection and refraction of light emitted from the LEDs by air bubbles rising through the liquid in the bottle after a measure has been dispensed from the optic.

A further striking aspect of the apparatus is that it is effective not only when used with a clear glass bottle but also when used with "frosted" glass and even coloured glass bottles. In such cases, in addition to any illumination of the liquid which might be visible, the light from the LEDs appears to give the bottle a shimmering or a shiny, polished appearance.

Most notably where the name or logo associated with the drink is marked on the bottle 1, by means of a label or a frosting or etching process, the name or logo appears illuminated and thus gains in prominence in attracting the attention of a customer.

It will be apparent that the ambient lighting in public houses and bars is usually low and consequently, even with a single LED, an aesthetically pleasing, attention-drawing effect can be achieved.

The LEDs 13 are conventional and may typically each have an output of luminous intensity between 0.4 and 9 cd. Such LEDs typically require a power supply providing a current of 20 to 25 mA and have a life span of the order of 100,000 hours. The apparatus thus has a negligible power consumption, has a long life span and can be inexpensive, safe and robust.

Conventionally, the internal light emitting element of an LED may be disposed such that the direction of strongest light emission is not parallel to the longitudinal axis of the LED. This feature can be used so that the direction of strongest emission of light forms an angle with a line normal to the surface of the circuit board 12. This angle may typically fall in the range of 8 to 45°. Thus selection of the LEDs enables adjustment of the intensity of the light emitted directly towards the bottle 1. That is, the angle of inclination is selected in

The individual LEDs 13 may all be of the same colour, for example white or blue, or they may be of two or more colours. The colour of the individual LEDs may be selected in accordance with the colour of the bottle 1, and/or the liquid 4 and/or the label or logo on the bottle 1. For example, in the case of a clear bottle containing peach schnapps (which is a clear spirit), the LEDs 13 may be selected to impart a peach colour to the bottle 1 and the liquid 4. Thus, attention is drawn both to the illumination of the bottle I and its contents and to their apparent colour. Moreover, the peach colour which might naturally be used in the logo is highlighted.

Where the LEDs 13 are selected to be of differing colours, it is possible to achieve a rainbow effect in the bottle 1, particularly with the rising air bubbles when a drink is dispensed. Suitable colours for LEDs include yellow, blue, green, red, red/orange, amber and white.

Control electronics (not shown) may be provided for controlling the operation of the individual LEDs 13. The control electronics may be provided either on the circuit board 12 or, preferably, outside of the housing 10. The control electronics may be used to control the duration and timing of the light emission from the individual LEDs 13. By this means, a number of different effects can be achieved, for example a flashing effect, the effect of changing colours, a strobe effect, a searchlight effect or a combination of effects. Moreover, switch means may be provided, operable either automatically by means of a timer or manually, for switching between different lighting effects.

A plurality of apparatuses 10 may be provided for use with a single power supply transformer and/or control electronics. The jack plug of the cabling 15 of each apparatus may be connected for example to a power supply distribution trunking which runs along a shelf to which the bottle holders are attached.

The present invention is of particular benefit where it is desired to indicate the promotion of one or more drinks and enables many novel uses. For example, in a first period of a "happy hour" one or more spirits may be sold at a discounted price, whilst in a second period of a "happy hour" other spirits may be sold at discounted prices. During the first period, the illuminating LEDs associated with bottles containing spirits to be sold at the discounted prices may be lit while those of other apparatuses are switched off. At the beginning of the second period, the illuminating LEDs associated with bottles containing the new spirits to be sold at the discounted prices may be lit while the other, previously lit, LEDs are switched off. At the end of the "happy hour" all the apparatuses may be lit or switched off. The switching means may be either automatic or manual.

Similarly, the control electronics previously described for controlling the duration and timing of the light emission from the individual LEDs 13 in a **single** illuminating apparatus 10 may be combined with the control electronics for controlling the operation of each apparatus. Thus, during a promotional "happy hour", all or some of the apparatuses 10 may be lit, but only apparatuses associated with promoted spirits may be controlled to provide, for example, a searchlight effect.

The foregoing description has been given by way of example only and it will be appreciated by a person skilled in the art that modifications can be made without departing from the scope of the present invention. In particular, light emitting devices other than LEDs may be used and whereas a cup-shaped cap has been described and illustrated, other arrangements may be used. The cap may for example be a flat plate with the LEDs attached thereto and which is spaced from and holds the base of the bottle via a plurality of legs.

CLAIMS

1. Apparatus for holding and displaying a bottle in an inverted position, comprising a main support member having means for retaining the neck-end portion of a bottle and means for retaining the base of a bottle, the means for retaining the base of a bottle comprising a cap, characterised in that the cap is provided with a light emitting component arranged to illuminate the base of a bottle held by the apparatus.

2. An apparatus according to claim 1, further comprising a circuit board supporting the light emitting component and mounted in or on the cap.

3. An apparatus according to claim 1 or claim 2, further comprising a reflector arranged to reflect light from the light emitting component on to the base of a bottle held by the apparatus.

4. An apparatus according to any one of the preceding claims, wherein the light emitting component comprises a plurality of light emitting elements.

5. An apparatus as claimed in claims 1 to 3, wherein the cap is cup-shaped and the circuit board and reflector are mounted in the cap with the reflector being adjacent to the mouth of the cup, the reflector being provided with an aperture through which part of the light emitting component extends or through which light from the light emitting component is projected.

6. An apparatus according to any one of the preceding claims, wherein said light emitting component comprises one or more light emitting diode.

7. An apparatus according to claim 4, wherein the light emitting elements all emit light of substantially the same colour.

8. An apparatus according to any one of the preceding claims, further comprising means for electrically connecting the light emitting component to a power supply, said means including a lead terminating in a jack plug.

9. An apparatus according to any one of the preceding claims, further comprising control electronics for varying the emission of light by the light emitting component.

Application No: GB 9915818.0
Claims searched: 1-9

Examiner: Dr Albert Mthupha
Date of search: 19 October 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): F4R (RAG); G5C (CFF)

Int Cl (Ed.6): B67D (1/08, 3/00); F21V (33/00); G09F (13/20, 13/22, 23/00, 23/02, 23/04)

Other: ONLINE: EPODOC, JAPIO, WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	GB 2005451 A	OPTIC ADS, see especially the Figure.	
A	WO 98/18116 A1	SHELTON, see page 4 lines 3-11 & Figure 2.	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.