

# (12) UK Patent Application (19) GB (11) 2 1 1 6 7 6 3 A

(21) Application No **8305215**

(22) Date of filing  
**25 Feb 1983**

(30) Priority data

(31) **8205866**

(32) **27 Feb 1982**

(33) **United Kingdom (GB)**

(43) Application published  
**28 Sep 1983**

(51) **INT CL<sup>3</sup> G01F 15/06**  
**1/00 3/00**

(52) Domestic classification  
**G4H 13D 14A 14B 14D**  
**1A ND**  
**B8N KL**  
**G1N 17 19B2G5**  
**19B2GX**  
**U1S 1110 1111 1725**  
**1742 1892 B8N G1N**  
**G4H**

(56) Documents cited  
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(58) Field of search  
**G4H**

**B8N**

**G1N**

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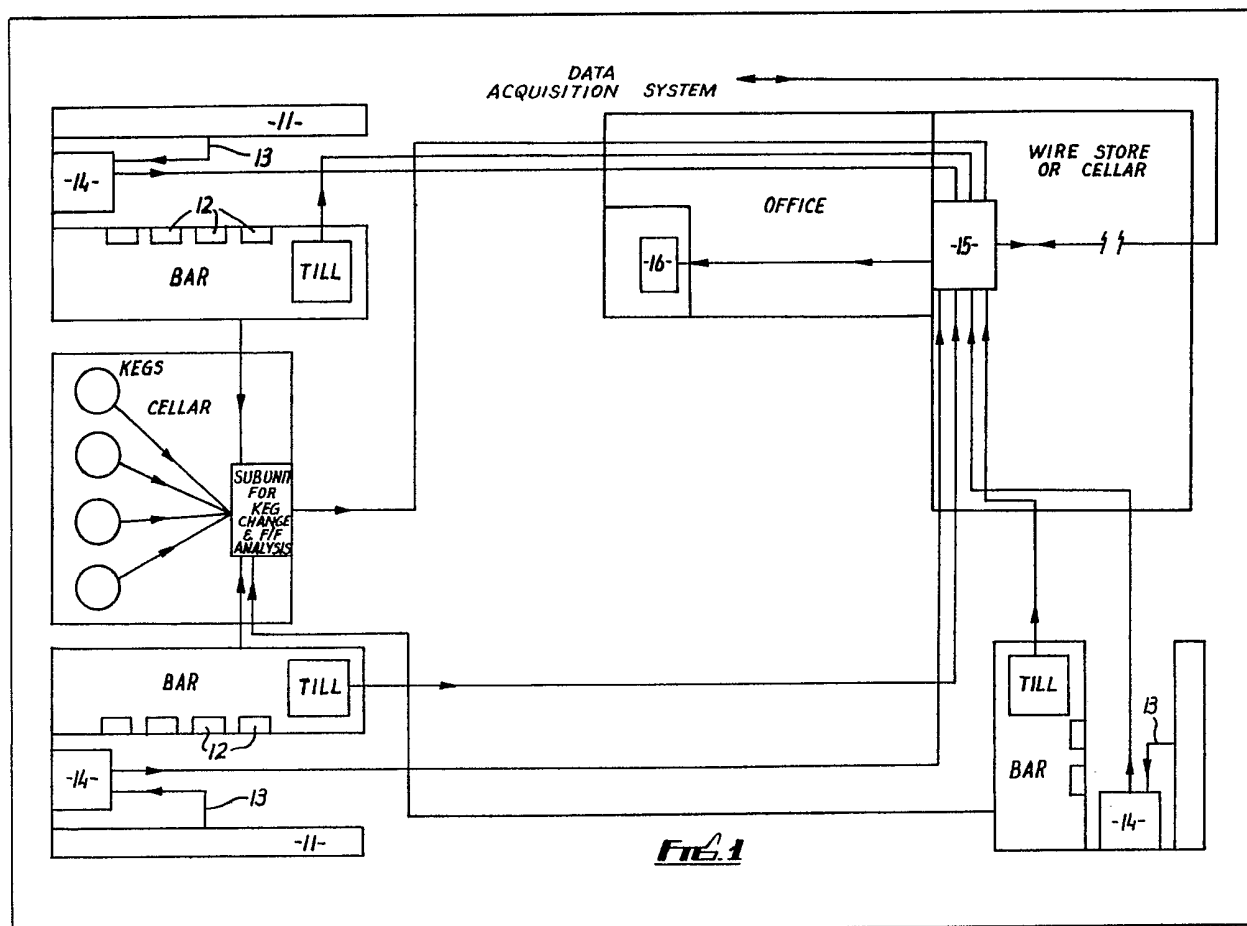
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be connected to a data processing unit enabling each sale to be monitored and recorded and total sales to be automatically totalled and displayed. Optic dispensers, container dispensers and free-flow beer dispensers are also disclosed which are suitable for use with the system

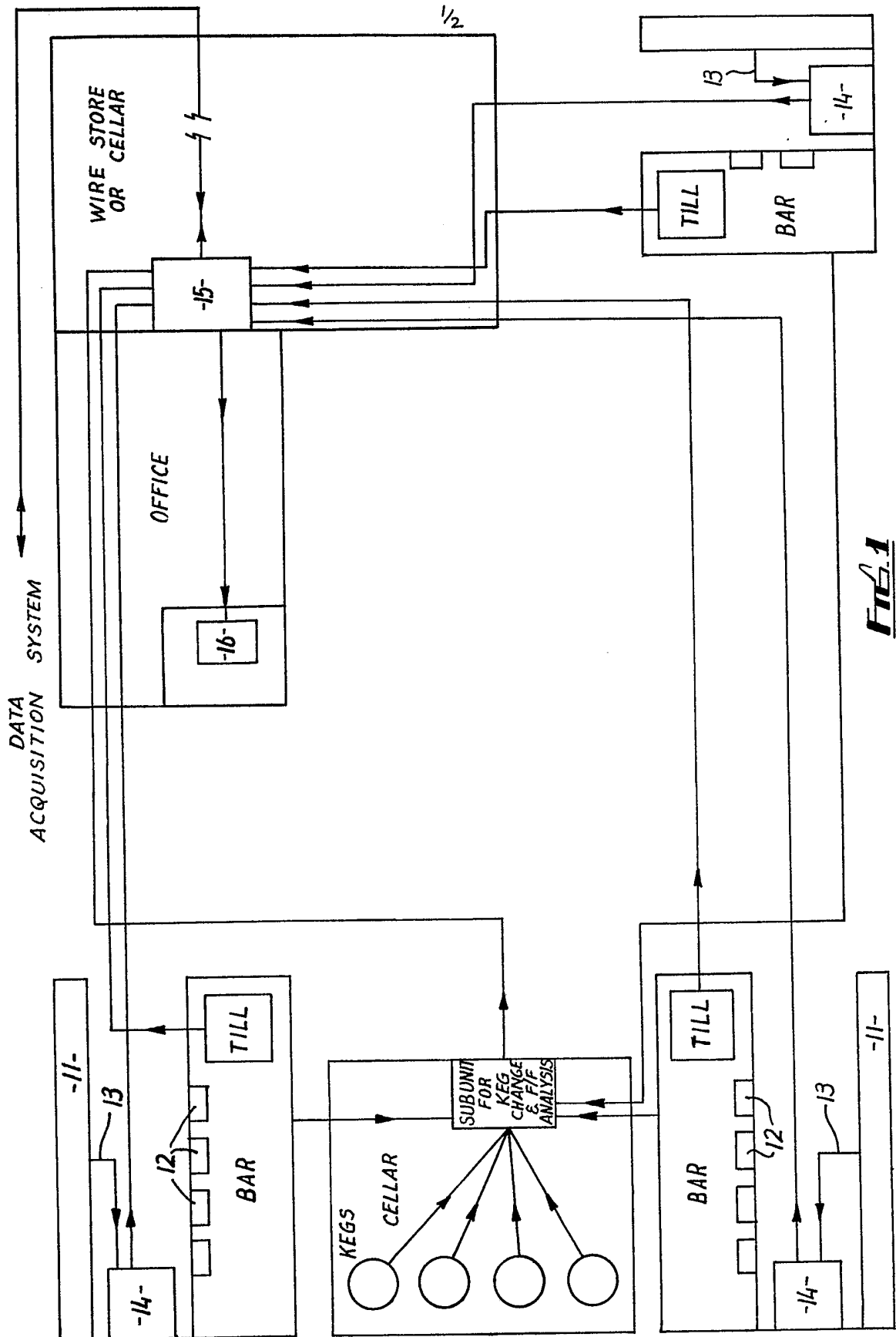
(54) **Bar system**

(57) In a bar system, beer dispensers, optic dispensers and bottle or other container dispensers can all

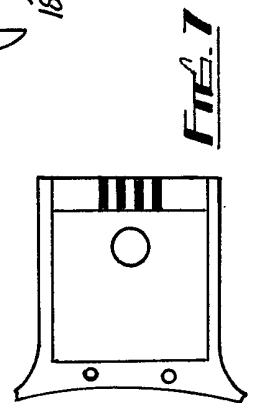
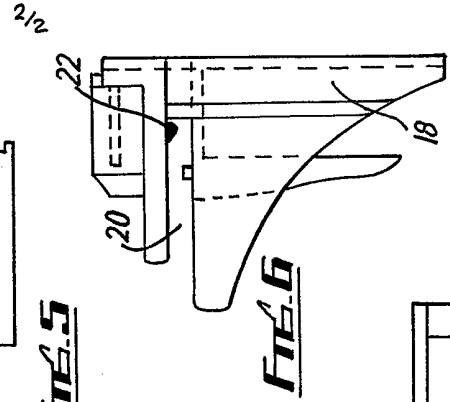
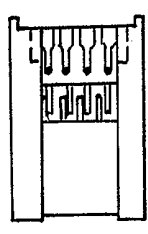
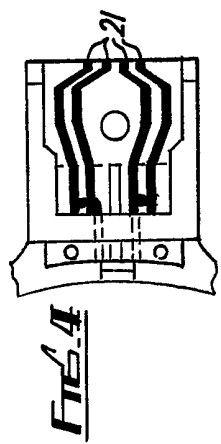
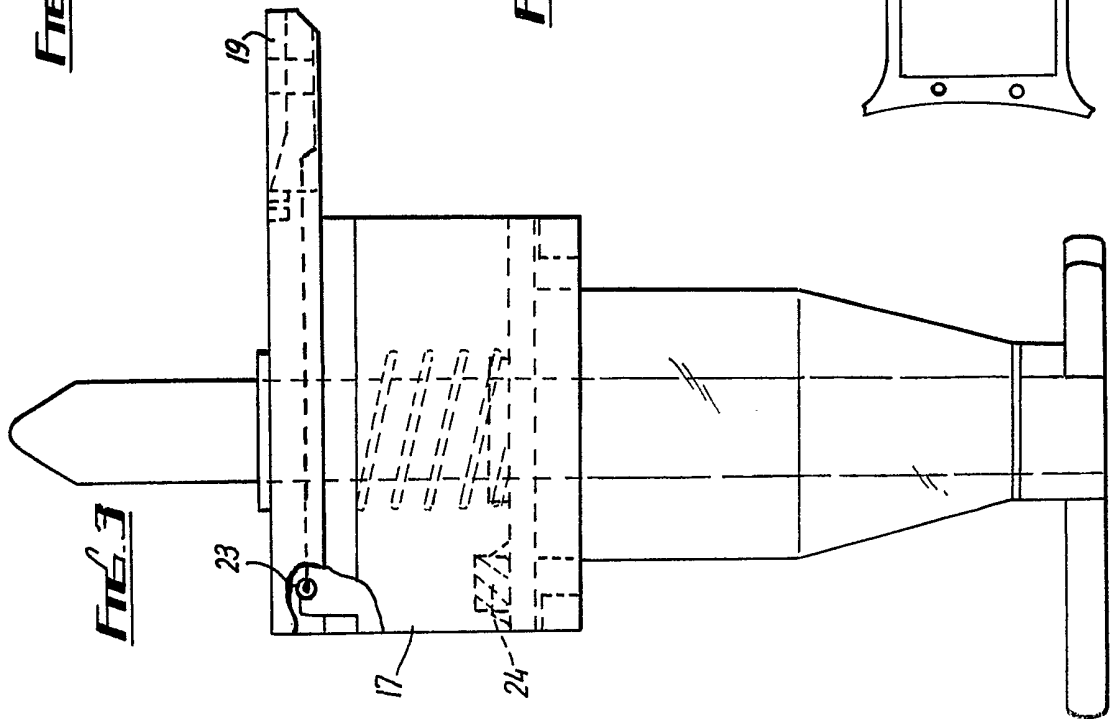
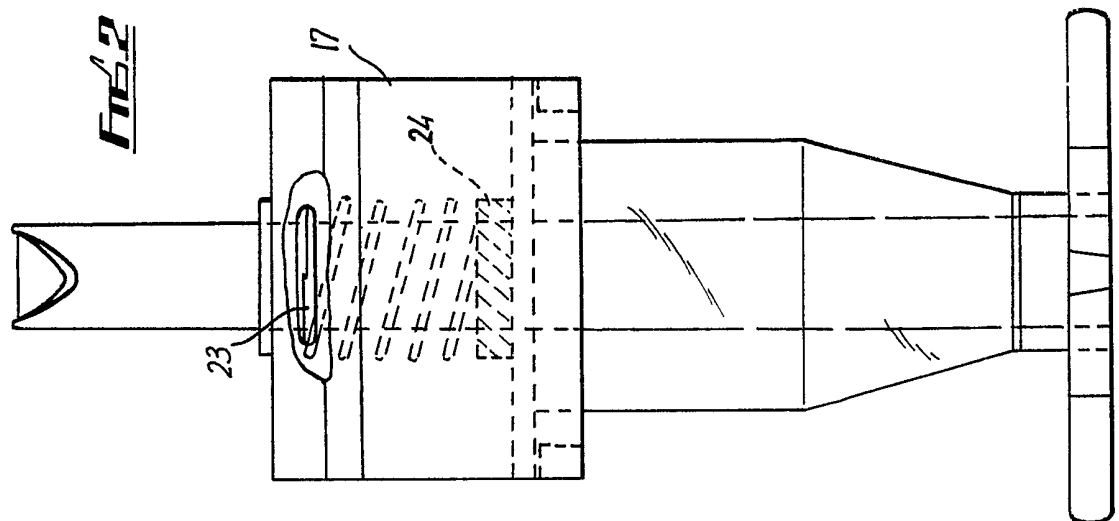


The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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**Fig. 1**



## SPECIFICATION

### Bar system

5 This invention relates to a bar system and it is an object of the invention to provide a bar system wherein the sale of goods can be automatically and accurately sensed and recorded.

10 The invention provides a bar system including a plurality of measure optic spirit dispensers and a plurality of beer dispensers, each optic and each beer dispenser being provided with means for sensing the operation thereof and passing a signal to a central processing unit which includes addition and store means and a display means capable of displaying the amounts of drinks dispensed.

20 Preferably the sensing means for each optic is adapted to supply a pulse to the processing unit each time it is operated. The pulse can come from a device sensitive to the movement of the movable component of the optic in a dispensing action and be passed along an electric cable to the processing unit. The origin of the pulse can be identified at the optic or, preferably, at an intermediate unit to which the optics are connected. Pulses containing identification codes to accompany the one pulse can be generated in the intermediate unit which can be adapted to be connected to a number of optics.

30 The sensing means for each beer dispenser can be a flowmeter generating a signal pulse each time a predetermined amount of liquid passes through it. Pulse-origin indicating pulses for the control processing unit can be generated at each beer dispenser or in a separate intermediate unit adapted to have a plurality of dispensers attached thereto.

40 The central processing unit can have a memory wherein the price of each commodity can be stored and whence data representing the price can be retrieved and displayed in the display means, which can conveniently be by a C.R.T.

50 The central processing unit can be installed in a building containing the bar system, for example a hotel, for use by the bar manager, or can be in a remote location, for example, a brewery controlling a number of tied outlets, and connectable to the bar system via the telephone system. In this latter case different parts of the central processing system will be in the bar building and at the remote location, and means will be provided for transferring data between the two parts over a telephone line.

60 In addition to the sensors on the optics and beer dispensers, other sensors can be connected to stores for products in bottles (e.g. beers and cordials, splits and mixers) and similarly connected to the central unit.

65 The invention also provides an optic spirit dispensing unit, for example for use with the

above system, comprising a measured optic head adapted to be connected to a bottle and a support adapted to be secured to structure in a bar, the head having a tongue receivable and releasably lockable in the support, the tongue being provided with a plurality of electrical connectors and the socket with a complementary set of connectors, the two sets being placeable into electrical union by the insertion of the tongue into the socket.

70 The electrical connections on the tongue can be strips of conducting material carried by a layer of insulating material secured to the tongue. The layer of insulating material can be a flexible material adhered to the tongue to overlie one face thereof. Advantageously the insulating material is adhered to overlie a free end portion of the tongue also. The contacts of the support can be resiliently urged towards a position where they are contacted by the connectors on the head when the tongue is inserted into the socket.

85 The conducting material is preferably copper or gold.

90 The invention further provides a container storage and dispensing unit, for example for use in connection with the above bar system, including means defining a plurality of individual container locations, a sensor associated with each location and adapted to sense the presence or absence of a container at that location means forming a water permeable barrier between the sensors and containers at the locations.

100 Preferably the sensors are sensitive to the weight of the containers and each in its simplest form may include a switch which is biased towards an open or closed position and moved to its other position when acted on by the weight of a container.

105 Advantageously the barrier against water is constituted by a base sheet, for example of plastics material formed with a plurality of depressions each defining a container location and adapted to be downwardly moved by the weight of a container at the location. This can be achieved by the sheet being flexible at least at or near the locations and normally supported in a raised condition and depressed by the placing of a container at a location.

115 The locations can be arranged in groups to enable a plurality of types of containers to be stored and each type monitored individually.

The invention will be described further, by way of example, with reference to the accompanying drawings, wherein:-

Figure 1 is a schematic diagram of a preferred system of the invention; and

125 Figures 2 to 7 illustrate an optic dispenser suitable for use with the invention.

A preferred bar system of the invention (Fig. 1) comprises a plurality of optic dispensers each as illustrated in Figs. 2 to 7) for spirits and the like, arranged in an array 11, a plurality of beer dispensers 12 and a plurality

of shelves (not shown) for storing bottles of beer, splits, mixers and the like. Electrical signal lines 13 from the optic dispensers (to be later described) are led to an intermediate

5 data processing unit 14 adapted to serve a group of, say, ten or twenty optics. There, signals from the optics are identified as to their source, address data are added to the pulses indicating their origins and pulses are  
10 transmitted on to a central data processing unit 15. In the flow line of each beer dispenser is disposed an accurate flow meter which emits a pulse each time a given volume of liquid passes. These pulses are again identified and passed to the central data processing  
15 unit. Similarly from each bottle storage shelf, which may be refrigerated, a pulse passes each time a bottle is removed and such pulses are also identified and passed to the central  
20 unit.

The interpretation of flow data from beer dispensers is a troublesome field, because the actual amount of beer dispensed may vary due to under or over dispensing due to error  
25 or beer conditions, eg fobbing. The arrangement used in the present invention is particularly effective in allowing for the variations in actual dispense due to varying conditions and allowing such variations to be realistically estimated to allow an accurate measurement of  
30 sales made.

Each flow line to a beer dispenser contains an extremely accurate flowmeter ( $1\frac{1}{2}\%$ ) which has an output in the form of a train of pulses.  
35 A number of such pulses correspond to one unit of beer, say a half pint. Assuming, for convenience, that this number is 100, the pulses generated by the flowmeter are passed to a data processing unit when they are  
40 suitably processed. When the rate of pulse generation as measured by the unit rises above a certain value, say 5 p.p.s., the unit decides that a dispensing operation has been initiated and activates a counter. When the  
45 rate falls below 5 p.p.s the unit decides that a dispensing operation has been terminated. At the end of the dispensing operation the total in the counter is transferred for further processing and the counter is reset to zero. This happens automatically if the value reaches  
50 100, any pulses over 100 being dealt with as a separate dispensing operation. A partly-filled counter is treated as follows:-

(i) If the count is 0-10 ignore the figure  
55 and zero the counter;  
(ii) If the count is 90-100 consider this a complete dispensing of a half pint, pass on a pulse to a half pint counter and zero the counter.

60 (iii) If the count is 10-140 hold as a running total until either (a) a second cessation of flow occurs or (b) a time of (say) 30 seconds has elapsed. If the count is between 10 and 90 after either of these two occurrences the counter is reset to zero and no

pulse is sent to the half pint counter.

The total number of pulses sent to the half pint counter is taken as the number of sales made and such date, together with price data,  
70 is passed for addition and subsequent comparison with till readings.

In the central unit 15 all the data is stored and processed and can be displayed, e.g. on a C.R.T. 16, in the form of tables which  
75 identify the amount of each commodity sold, for example during a particular sales period, the price and several other factors which assist the bar manager in his task. Such other factors can include the number of times a  
80 spirit or like bottle is changed and the number of times a beer container is changed. This allows a check to be made as to whether the amount of units of a commodity sold tally with the nominal contents of a container.

85 The central unit can be entirely within a bar building for example in a manager's office or partly in a remote location, as a brewery and connectable to the bar via the telephone system. The central unit can have a memory into  
90 which unit prices can be fed and extracted allowing the price to be displayed and bar sales in a particular period calculated automatically.

Each optic dispensing unit (Figs. 2 to 7)  
95 comprises a measured optic head 17 adapted to be connected to a bottle and a support 18 adapted to be secured to structure in a bar, the head 17 having a tongue 19 receivable and lockable in a socket 20 in the support,  
100 the tongue 19 having electrical connectors 21 and the socket having a complementary set of connectors 22, the two sets being brought into electrical union when the tongue is in the socket. The optic head has a sensor, for  
105 example a read switch 23 or a Hall-effect device which is responsive to dispensing movement of a magnet 24 carried by a movable part of the optic head 17 and having leads which are connected to the connections  
110 on the tongue 19. The connectors on the support are connected to wires leading to the intermediate processing unit 15. The electrical connectors on the tongue are in the form of a plurality of discrete copper strips on the surface of a flexible insulating base of plastics material. The base is secured to the tongue by  
115 adhesive. The connectors on the support are in the form of a complementary plurality of pins spring-biassed towards a position where they are contacted by the copper strips when the tongue is inserted into the socket

Each container dispensing shelf (not shown) is suitable for storing bottles or cans of beer or fruit juices and splits and is divided into a  
125 plurality of sections each for one commodity. Each shelf has a base member of moulded or vacuum formed from plastics sheet material to have a plurality of cup-like depressions each constituting one container-receiving location.  
130 Each depression has a base which is con-

nected to the rest of the sheet by an annular flexible portion, for example of concertina-like cross-section enabling the weight of a container placed at the location to depress the base and close a normally open switch beneath the base. When the container is removed for sale the switch opens and a signal is passed to the central unit indicating a sale and identifying the section from which the container has been sold and hence the type of drink sold.

Thus using the system of the invention and the optic units and bottle shelves of the invention, the operation of a bar can be easily monitored and controlled. It will be appreciated that the central processing unit can be easily interfaced with a till and/or with a stock control system to allow further checking and even automatic re-ordering to keep stocks at a predetermined level.

#### CLAIMS

1 A bar system including a plurality of measured optic spirit dispensers and a plurality of beer dispensers, each optic and each beer dispenser being provided with means for sensing the operation thereof and passing a signal to a central processing unit which includes addition and store means and a display means capable of displaying the amounts of drinks dispensed.

2. A system as claimed in claim 1 wherein the sensing means for each optic is adapted to supply a pulse to the processing unit each time it is operated.

3. A system as claimed in claim 2 wherein the pulse comes from a device sensitive to the movement of a movable component of the optic in a dispensing action and is passed along an electric cable to the processing unit.

4. A system as claimed in claim 3, wherein the origin of the pulse is identified at the optic.

5. A system as claimed in claim 3, wherein the origin of the pulse is identified at an intermediate unit to which the optics are connected.

6. A system as claimed in claim 4 or 5 wherein pulses containing identification codes to accompany the one pulse are generated in the intermediate unit which is adapted to be connected to a number of optics.

7. A system as claimed in claim 1, wherein the sensing means for each beer dispensing is a flowmeter generating a signal pulse each time a predetermined amount of liquid passes through it.

8. A system as claimed in claim 7, wherein pulse-origin-indicating pulses for the central processing unit are generated at each beer dispenser.

9. A system as claimed in claim 7, wherein pulse-origin-indicating pulses for the central processing unit are generated in a separate intermediate unit adapted to have a

plurality of beer dispensers attached thereto.

10. A system as claimed in any preceding claim wherein the central processing unit has a memory wherein the price of each commodity is stored and whence data representing the price can be retrieved and displayed on the display means.

11. A system as claimed in claim 10, wherein the display means includes a cathode ray tube.

12. A system as claimed in any preceding claim wherein the central processing unit is installed in a building containing the bar system.

13. A system as claimed in any of claims 1 to 11 wherein the central processing unit is in a remote location controlling a number of outlets, and is connectable to the bar system via the telephone system.

14. A system as claimed in claim 12 wherein different parts of the central processing system are in the bar building and at the remote location, and means are provided for transferring data between two parts over a telephone line.

15. A system as claimed in any preceding claim, wherein addition to the sensors on the optics and beer dispensers, other sensors are provided which can be connected to stores for products in bottles or other containers and similarly connected to the central unit.

16. An optic spirit dispensing unit comprising a measured optic head adapted to be connected to a bottle and a support adapted to be secured to structure in a bar, the head having a tongue receivable and releasably lockable in a socket in the support, the tongue being provided with a plurality of electrical connectors and the socket with a complementary set of connectors, the two sets being placeable into electrical union by the insertion of the tongue into the socket.

17. A unit as claimed in claim 16 wherein the electrical connections on the tongue are strips of conducting material carried by a layer of insulating material secured to the tongue.

18. A unit as claimed in claim 17 wherein the layer of insulation material is a flexible material adhered to the tongue to overlie one face thereof.

19. A unit as claimed in claim 18 wherein the insulating material is adhered to overlie a free end portion of the tongue also.

20. A unit as claimed in claim 19, wherein, the contacts of the support are resiliently urged towards a position where they are contacted by the connectors on the head when the tongue is inserted into the socket.

21. A unit as claimed in claim 19 or 20, wherein the conducting material is copper or gold.

22. A container storage and dispensing unit, including means defining a plurality of individual container locations, a sensor associated with each location and adapted to sense

the presence or absence of a container at that location and means forming a water impermeable barrier between the sensors and containers at the locations.

5 23. A unit as claimed in claim 22 wherein the sensors are sensitive to the weight of the containers.

24. A unit as claimed in claim 23 each sensor includes a switch which is biased  
10 towards an open or closed position and moved to its other position when acted on by the weight of the container.

25. A unit as claimed in claim 22, 23 and 24 wherein the barrier against water is consti-  
15 tuted by a base sheet.

26. A unit as claimed in claim 25, wherein the sheet is of plastics material formed with a plurality of depressions each defining a container location and adapted to  
20 be downwardly moved by the weight of a container at the location.

27. A unit as claimed in claim 26 wherein the sheet is flexible at least at or near the locations and normally supported in a raised  
25 condition and depressed by the placing of the container at a location.

28. A unit as claimed in claim 26, wherein the locations are arranged in groups to enable a plurality of types of containers to  
30 be stored and each type monitored individually.

29. A bar system substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.  
35 30. An optic dispensing unit substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

31. A container dispensing unit substantially as hereinbefore described with reference  
40 to and as illustrated in the accompanying drawings.