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(72) Inventors:
• **Metcalf, Nicholas**
Salterforth, Barnoldswick BB18 5TN (GB)
• **Metcalf, Neil Simon**
Salterforth, Barnoldswick BB18 5TN (GB)

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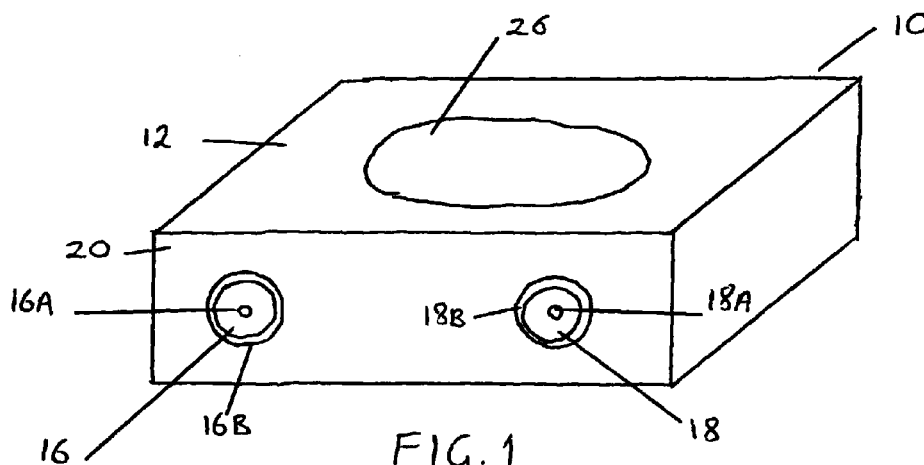
(74) Representative:
Chugg, David John et al
Appleyard Lees,
15 Clare Road
Halifax, West Yorkshire HX1 2HY (GB)

(71) Applicants:
• **Metcalf, Nicholas**
Salterforth, Barnoldswick BB18 5TN (GB)
• **Metcalf, Neil Simon**
Salterforth, Barnoldswick BB18 5TN (GB)

(54) **Display apparatus**

(57) The invention relates to display apparatus for displaying items such as bottles in an attractable eye-catching manner. The apparatus comprises a base unit (10) onto which a bottle may be placed, a light source housed within the base unit (10) and arranged to illuminate the object through a light transmissive window

(26), a supply of power (16) for powering the light source (14) and means for conveying power to a further base unit. The base units (10) are interlinkable in a daisy-chain fashion and configurable to form aesthetically pleasing display layouts.



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Description

[0001] The invention relates to display apparatus. In particular, display apparatus comprising an illuminated base unit onto which items to be displayed may be placed.

[0002] There are in use, a number of different means for displaying objects in shop windows for shop displays etc. As always, the object of such apparatus is to stimulate interest in the particular objects being retailed by displaying them in an attractive or eye catching manner.

[0003] According to a first aspect of the invention, there is provided display apparatus comprising a base unit onto which an object to be displayed may be placed, a light source associated with the base unit and arranged to illuminate the object, a supply of power for powering the light source and means for conveying power to a further base unit.

[0004] The supply of power may comprise an electrical connection for conveying electrical power into the base unit.

[0005] The electrical connection may comprise a "power-in" connection.

[0006] The power-in connection may provide an electrical link to a preceding base unit or to an external power supply.

[0007] The supply of power may comprise a battery, a stabilised or un-stabilised voltage supply or a connection to a mains power source.

[0008] The means for conveying electrical power to a further base unit, preferably comprises an electrical link such as a "power-out" connection.

[0009] Link means may be provided for linking a first base unit to a second base unit and conveying power from the "power-out" connection of the first base unit to the "power -in" connection of the second base unit. Said link means may comprise an electrical connector. The electrical connector preferably is flexible so as to allow independent orientation of the individual base units.

[0010] The link means may comprise a double-ended connector, with a first end for co-operating with a "power-out" connection of a first base unit, and a second end for co-operating with a "power-in" connection of a second base unit.

[0011] Each base unit is preferably provide with identical "power-in" and "power-out" connections with the "power-out" connection being able to be used as the "power-in" connection and vice versa.

[0012] The link means may comprise a trailing lead for co-operating with a male "power-out" connection of a first base unit to link with a corresponding female "power-in" terminal or vice versa.

[0013] The link means may be formed by providing a first base unit with either an integral male or female electrical connector and a second base unit with either an integral female or male electrical connector respec-

tively and directly connecting the first base unit to the second base unit.

[0014] The light source may be provided inside the base unit. The base unit preferably includes a window through which light from the light source housed within the base unit is transmissible.

[0015] The window may comprise an aperture formed in the base unit. The window may comprise a piece of light transmissive material which closes said aperture.

[0016] The window may be provided in a position on which the object is to be placed.

[0017] Alternatively, the window may be placed at a position which is exposed when the object is present.

[0018] Reflecting means may be provided for reflecting light transmitted by the exposed window onto the object. The reflecting means may comprise a mirror or prism.

[0019] The light source may, alternatively, be provided on top of the base unit. In this case, the light source may be provided in a small sub-housing which may form an integral extension of the base unit or which may be in a separate housing unit closely associated with the top surface of the base unit.

[0020] The display apparatus may comprise a base unit, with at least one light source and a plurality of windows through which light from the one or more light sources is transmitted, the base unit may be arranged to support a plurality of objects which are to be illuminated by light transmitted through the windows. The base unit may accommodate a plurality of light sources.

[0021] Preferably, the or each window is arranged to receive the or each object upon it so as to illuminate the object from beneath.

[0022] Preferably, the or each object comprises a bottle.

[0023] As an alternative to the or each object being illuminated from directly underneath by placing it on a window, the or each object may be illuminated from a side position. Such side illumination may be from direct light given by the light source being provided on the top of the base unit - for instance as described in relation to the sub-housing mentioned earlier - or may be by reflected light. Such reflected light may be directed toward the or each object by allowing light to be transmitted from the light source located inside the base unit to a reflecting means, from which it is then directed towards the or each object.

[0024] An array of display apparatus may be provided, with each apparatus within the array directly abutting its neighbour(s) in the array.

[0025] The power-in connection may be of complementary formation to the power-out connection and the relative positions of the connections with respect to the base unit are preferably arranged so that the display apparatus can be arranged to closely abut with a neighbouring display apparatus such that the plurality of so configured display apparatus' may be neatly aligned

with one another. By "neatly aligned", it may be meant that the plurality of display apparatus appears to form a neat shape such as a substantially continuous straight or curved line or form a neat geometrical pattern

[0026] The base unit may be quadrilateral or may be of any other preferred shape.

[0027] The base unit may be equipped with more than one power-in connection and more than one power-out connection so as to facilitate different groupings of display apparatus and enable the formation of different geometrical patterns.

[0028] The display apparatus may comprise a plurality of positions on which objects to be displayed may be placed, with light for illuminating at least some of those objects, being transmitted through individual windows formed in the base unit. The base unit may include a plurality of light sources housed within it.

[0029] A plurality of such display apparatus may be provided with interconnection between base units being made in daisy chain fashion by trailing wires.

[0030] For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1 shows a first embodiment of display apparatus;

Figure 2 shows a second embodiment of display apparatus;

Figure 3 shows a connection member;

Figures 4A and 4B are schematic representations of the interior of a display apparatus according to Figure 1 and 2 respectively;

Figure 5 shows a possible arrangement of a plurality of display apparatus according to embodiments of the present invention;

Figures 6A to 6D show further possible display arrangements;

Figure 7 shows a stand on which individual base units may be arranged; and

Figure 8 shows an alternative base unit arrangement with a sub-housing for providing rear lighting to an object to be displayed.

[0031] Referring now to the Figures in more detail, preferred embodiments of the present invention will now be described.

[0032] Referring initially to Figures 1, 3 and 4A a first embodiment of display apparatus is described.

[0033] The display apparatus comprises a base unit

10 having a top surface 12 on which an object to be displayed may be placed, a light source 14 arranged within the base unit and power-in 16 and power-out 18 connections. The power-in connection 16 is arranged to supply power to the light source 14 and the power-out connection 18 is arranged to convey power to a further base unit. The base unit 10 is shown as having the power-in connection 16 arranged as a socket on a side or rear wall 20 of the base unit 10, with a power-out socket 18 being arranged in the same wall. Alternatively, the power-in power-out connections may be provided on opposed side walls.

[0034] The top surface 12 of the base unit 10 has an aperture formed therein and light transmissive material 26 is placed over said aperture so as to allow light from the light source 14 to be transmitted from the base unit 10 out through the window formed by the material 26.

[0035] Considering now Figure 3, there is shown a possible connector for interconnecting the base unit of one display apparatus to the base unit of another display apparatus. The connector, shown generally as reference numeral 30 comprises a double-ended connector having first male projection 32 and a second male projection 34 protruding from a flexible section 36. It will be appreciated that, in most instances, the connector 30 provides both positive and negative connections, with the positive connection being shielded by the negative connection. In other words, the projection 32 may be a hollow cylinder type connection with the outer surrounding surface 38 forming the supply return, and a connection 40 inside the cylinder being the positive connection. Referring back to Figure 1, it can be seen that the power-in connection again has effectively two electrical connection points with a recessed post 16A shaped to be received by the interior connection 40 and to make electrical connection with it, and an outer surrounding wall 16B forming the connection for positive supply voltage by receiving the outer surrounding wall 38.

[0036] It will be appreciated of course that the projection 34 has the same features as the projection 32, with positive and negative terminals being provided by inner and outer surfaces of the hollow cylindrical electrical connector.

[0037] Referring now to Figures 2 and 4B in particular, there is shown a second embodiment of display apparatus. This embodiment is very similar to the first embodiment except that on the upper surface 12, there is provided light reflecting means 42 which is arranged to receive light through a window portion 44 from a light source 14 inside the base unit and reflect the light of the light source 14 upwardly.

[0038] It will equally be understood that embodiments which may be visually similar to the Figure 2 embodiment and which have the light source mounted on top of the base link 10 are within the scope of the invention. In such cases, a small bulb or light source

may be provided within a sub-housing provided on the upper surface 12 for transmitting light directly, or through a window, onto an object placed on the surface 12.

[0039] Examples of the use of display apparatuses according to the Figure 1 and 2 embodiments, will now be described.

[0040] With the first type of embodiment shown in Figures 1 and 4A, the light transmitted material 26 placed over the window in upper surface 12 of the base unit 10 is arranged to have an object placed upon it, such as a bottle. When power is transmitted to the light source 14, that light shines through the light transmissive portion 26 and through the glass of the bottle so as to illuminate the interior of the bottle and show off the bottle on the display apparatus to good effect.

[0041] With embodiments of the type shown in Figures 2 and 4B, objects to be displayed are placed directly on the top surface 12 of the base unit 10 and light is shined onto the object via window 44 and reflecting means 42 so as to light up, for instance, a front face of the object stood on the top surface 12. This type of display may be more suitable for bottles of darkened glass which, otherwise, might not be properly illuminated by means of base units having the formation shown in Figure 1.

[0042] It will be appreciated that other embodiments apart from the ones shown in Figures 1 and 2 may be envisaged. For instance, embodiments having both the direct lighting means from underneath and the reflecting means for projecting the light onto an object to be displayed may be provided.

[0043] It will also be appreciated that various different types of connector and means of connection between base units may be provided. For instance, the power-in connections of one base unit may be arranged to be of complementary shape to the power-out connections so that connectors of the type shown in Figure 3 may be eliminated.

[0044] By effectively having power transferred through the base units, it will be appreciated that the invention provides a very flexible type of display apparatus. Exemplary configurations of the display apparatus are shown in Figure 5 and Figure 6A to 6D.

[0045] Considering firstly Figure 5, there are shown 3 rows 50, 52 and 54 of display apparatus. The end display apparatus 50₁ of the first row 50 is arranged so as to have its power-in connection provided by a trailing wire 55. The power-out connection of display apparatus 50₁ however is connected to the power-in connection of neighbouring display apparatus 50₂ by means of a flexible connector of the type shown in Figure 3. The flexible section allowing neighbouring display apparatuses to have their base units slightly fanned out with respect to one another so that simple curves may be achieved.

[0046] It will be appreciated that each of the display apparatus 50₂ to 50₉ receive power from the power-out connection of their neighbouring base unit on one side,

and transmit power to their neighbour on the other side. Display apparatus 50₁₀ has its power out connection joined, by trailing cable 56 to the first display apparatus 52₁ of the second row 52. The display apparatuses 52₁ to 52₉, interconnect with one another in the same manner as was described in relation to the display apparatuses of the first row 50 and then power is conveyed from the end display apparatus 52₉ of the second row 52 up to display apparatuses of a third row 54 by trailing lead 57.

[0047] It will be appreciated that by having the power-in and power-out connections effectively wired straight through on one another as shown in the schematic representations of Figure 4A and Figure 4B, the terms power-in and power-out are actually interchangeable with one another, so that power can be fed left to right through a row of display apparatuses or, right to left, without any difficulties.

[0048] From Figure 5, it will be appreciated that the end display apparatus 54₆ need not have its power-out connection connected to any other unit, but could, if required, act as a power point for driving any supplementary display apparatus, such as a display carousel or an illuminated stand 58.

[0049] Figures 6A to 6D show arrangements by which individual display apparatus may be placed on different levels and interconnected by trailing wires so as to have a double podium effect as shown in Figure 6A, an alternating effect as shown in Figure 6B, a pyramid type effect as shown in Figure 6C or a multilevel sophisticated effect as shown in Figure 6D. Although trailing wires are shown between individual display apparatuses in Figure 6A to 6D, it will of course be appreciated that such trailing wire may be fed in a discrete manner and concealed if required. Alternatively, they could be made a feature of the apparatus so that the overall display has an appearance resembling inter-linked Christmas tree type lights.

[0050] Figure 7 shows a display stand 70 upon which individual base units may be arranged to sit. The display stand 70 includes a top base unit receiving area 71. The receiving area 71 is arranged to be of sufficient dimensions to fit a base unit snugly into. The stand has front support legs 72, 73 which have cut away portions 72A, 73A. These cut away portions 72A, 73A are arranged to cooperate with upper front legs, 74, 75 of another stand 70 identical to the first stand 70, so as to allow convenient and secure stacking of stands one upon another. Also, to facilitate this, a lower rear wall 76 has a cut away portion 76A for cooperating with an upper wall portion 77. It will be appreciated that stands 70 of the type shown in Figure 7 may be arranged so as to provide the different height and display configurations shown in Figures 6A to 6D.

[0051] Figures 6A to 6D show bottles being displayed but, of course, other objects can just as well be displayed on the display apparatus. Also, different types of display apparatus may be intermingled within a par-

ticular chain and of course size and configuration of the tiles may be varied according to application. For instance, although basic square tile type display apparatus is shown, triangular formations or other geometric shapes may be used incorporating the same principles.

[0052] Figure 8 shows a base unit 10' upon which there is mounted a sub-housing 80. The sub-housing 80 includes a light source 81 which can be arranged to illuminate the rear of an object based upon the base unit 10'. The sub-housing 80 includes electrical connections within it, which can cooperate with electrical connections from the base unit 10' to allow power to be fed to the light source 81. Also, the base unit 10' may provided with appropriate mechanical mounting means for securely mounting the sub-housing 80 upon it.

[0053] A person skilled in the art will recognise from Figures 4A and 4B, that effectively parallel type electrical connections are shown for interlinking different display apparatuses. This is probably the most flexible configuration as the voltage supplied to each display apparatus with a parallel connection is maintained at a same given level. If devices were provided with serial connections instead, then the voltage drops across each light source would reduce the incoming voltage for the neighbouring display apparatus. Also, with a serial type connection, if one light source were to become defective and go open circuit then the whole chain of interlinked display apparatuses would turn off, whereas with the parallel connection, if one light source fails, then the illumination of that device alone ceases to function and replacement is made easier.

[0054] It will be appreciated though that in certain display environments, a serial connection is perfectly acceptable and may, indeed, be preferable. For instance, where the voltage rating of each light bulb is to be 4 volts RMS, then 60 such units could be arranged serially connected to a main supply of 240 volts RMS.

[0055] The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

[0056] All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

[0057] Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

[0058] The invention is not restricted to the details of the foregoing embodiment(s). The invention extends

to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

Claims

1. Display apparatus comprising a base unit (10) onto which an object to be displayed is positionable, a light source (14) associated with the base unit (10) and arranged to illuminate the object, a supply of power (16) for powering the light source (14) and means (18) for conveying power to a further base unit.
2. Apparatus according to claim 1, wherein the supply of power comprises an electrical connection (16) for conveying electrical power into the base unit (10) via a "power-in" connection which provides an electrical link to a preceding base unit (10) or to an external power supply.
3. Apparatus according to claim 1 or 2, wherein the means for conveying electrical power to a further base unit comprises an electrical link in the form of a "power-out" connection (18) for connecting with a corresponding "power-in" connection (16) of a subsequent unit.
4. Apparatus according to claim 2 or 3, wherein link means (30) are provided for linking a first base unit (10) to a second base unit (10) and conveying power from the "power-out" connection (18) of the first base unit (10) to the "power-in" connection (16) of the second base unit (10), the link (30) comprising a flexible electrical connector for allowing independent orientation of individual base units.
5. Apparatus according to claim 4, wherein each base unit (10) is provided with identical "power-in" (16) and "power-out" (18) connections with the "power-out" connection being able to be used as the "power-in" connection and vice versa.
6. Apparatus according to any of the preceding claims, wherein the light source (14) is provided inside the base unit (10) and the base unit (10) includes a window (26) through which light from the light source housed within the base unit (10) is transmissible.
7. Apparatus according to claim 6, wherein the window (26) is provided in a position on which the object is to be placed.
8. Apparatus according to any of the preceding claims, wherein the base unit (10) includes a plural-

ity of windows (20) through which light from one or more light sources (14) housed within the base unit (10) is transmissible, the base unit (10) being arranged to support a plurality of objects which are to be illuminated by light transmitted through the windows (26). 5

9. Apparatus according to any of the preceding claims, wherein the or each object comprises a bottle arranged to be positioned on the base unit (10) over a window (26) through which light, in use, is transmitted so as to provide the effect of illuminating the bottle from within. 10
10. Apparatus according to any of the preceding claims, wherein there is provided a sub-housing (80) configurable upon the base unit (10) and closely associated with the top surface of the base unit (10) through which light may be transmitted to the rear of an object to be displayed. 15 20
11. Apparatus according to any of the preceding claims, wherein a plurality of base units (10) are arrangeable so as to closely abut one another to form a geometrical pattern. 25

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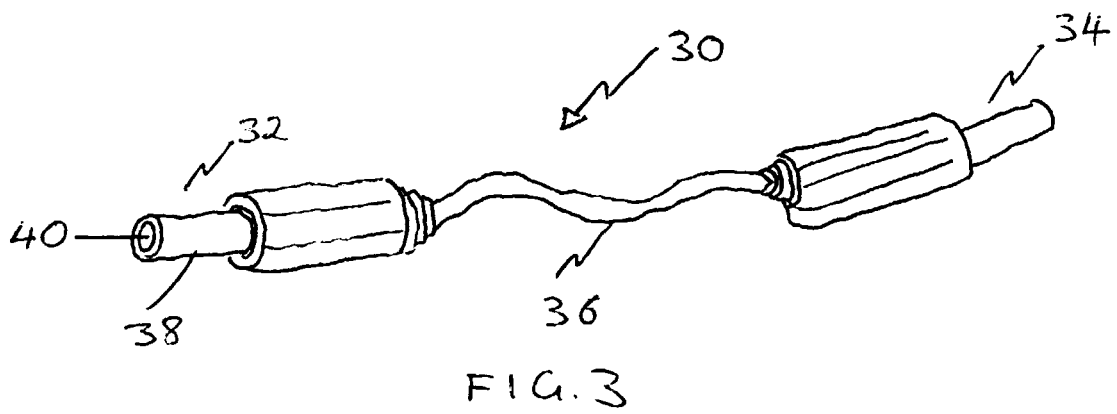
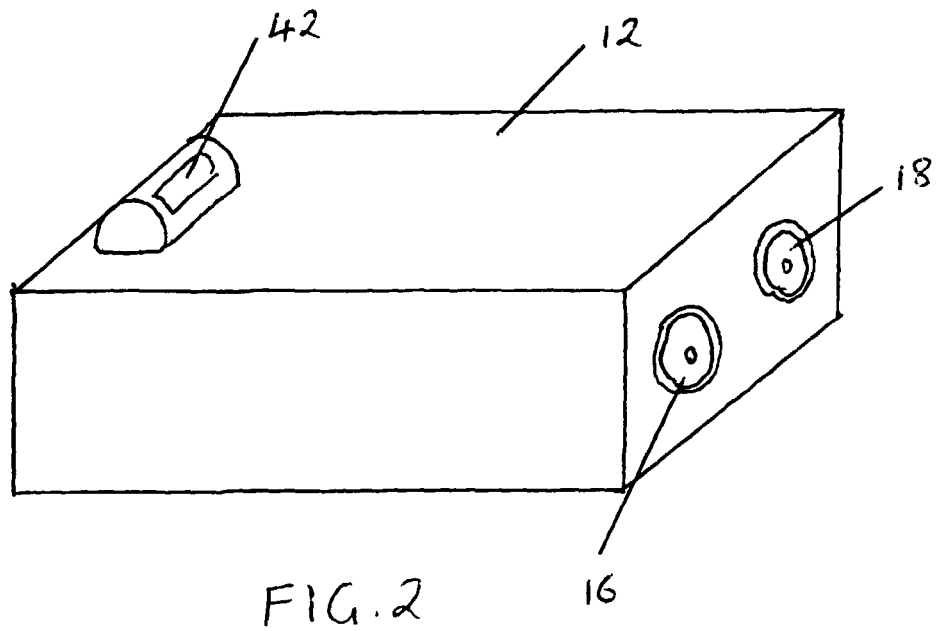
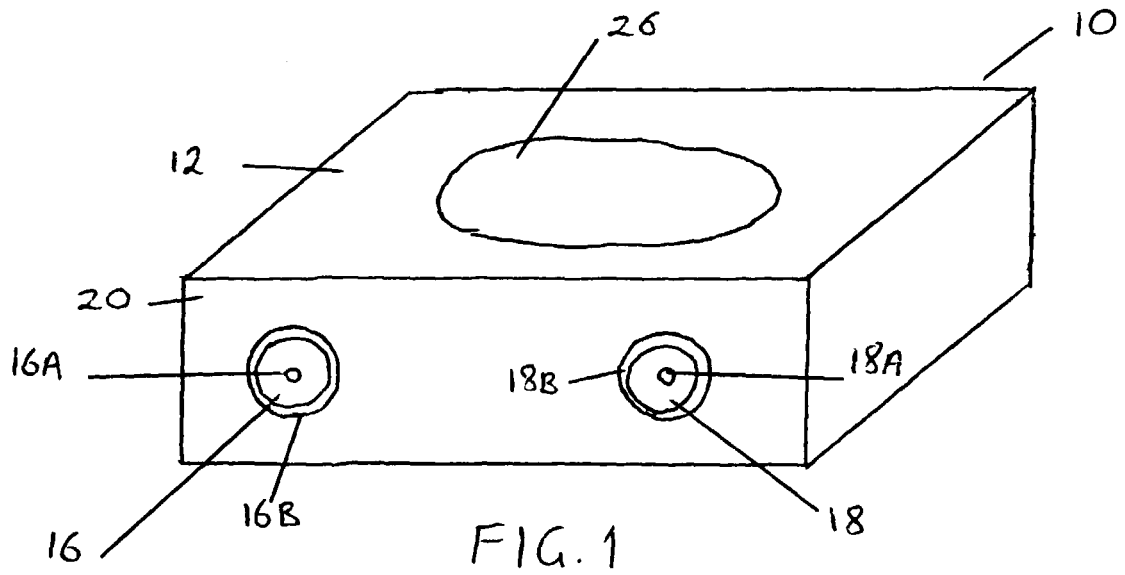
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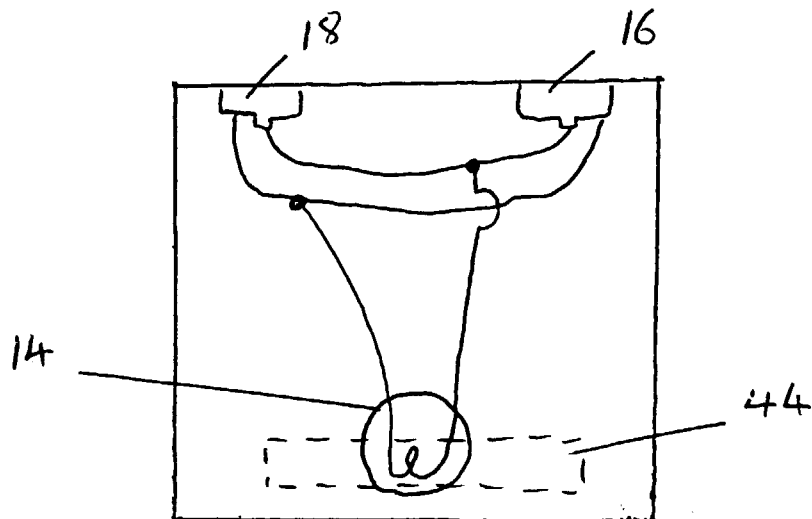
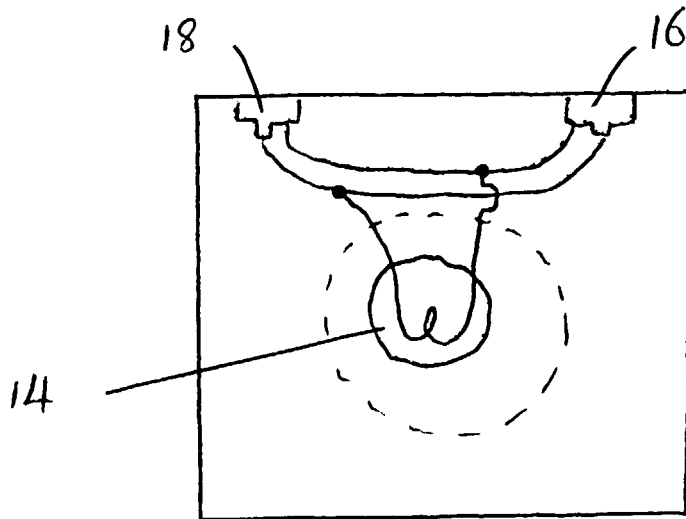
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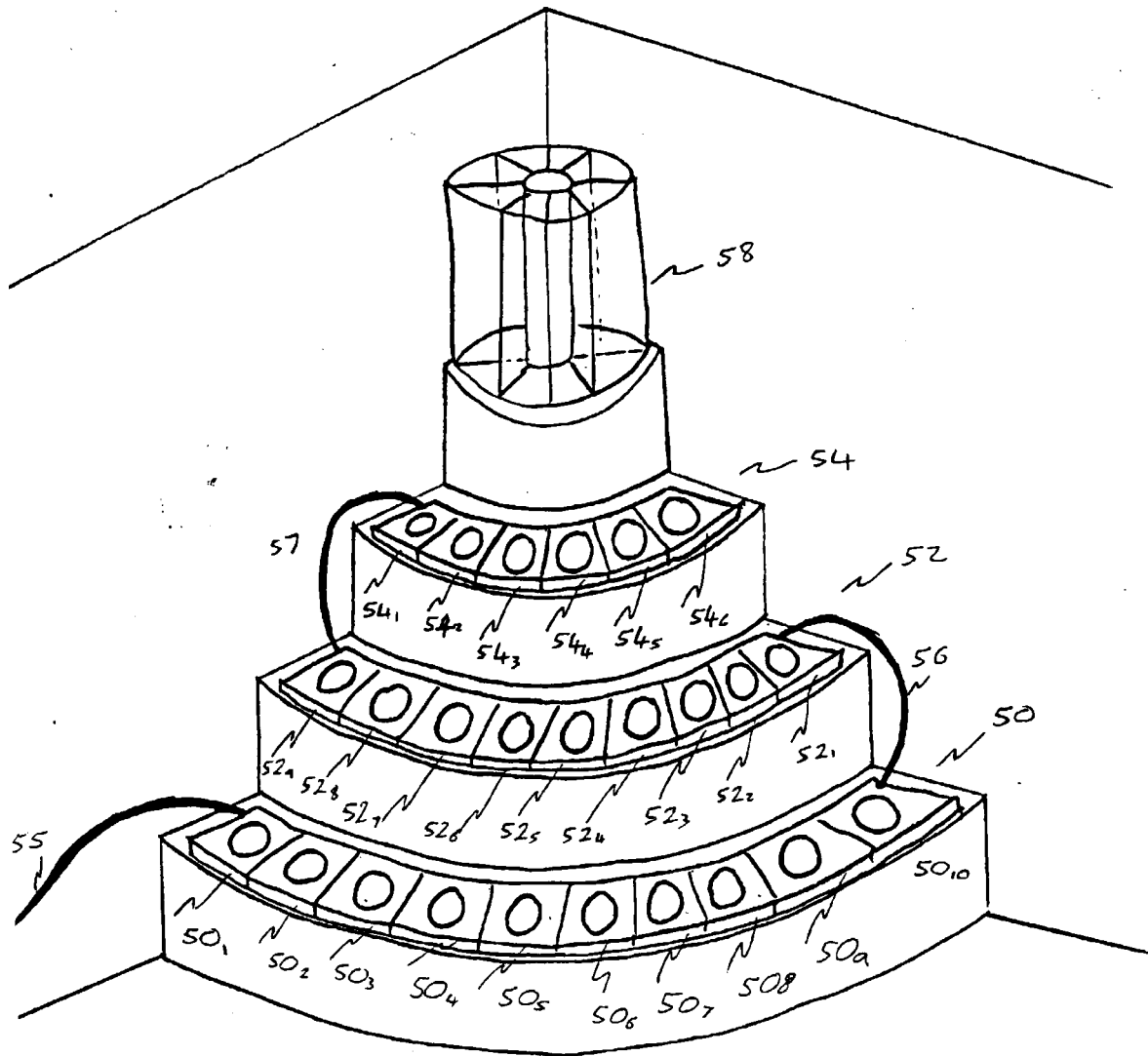


FIG. 5

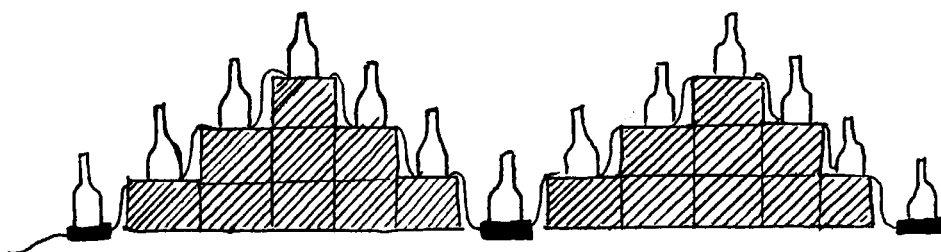


FIG. 6A

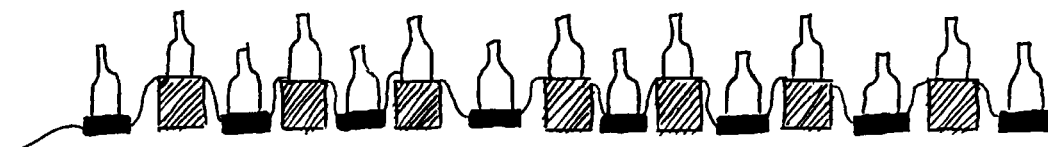


FIG. 6B



FIG. 6C

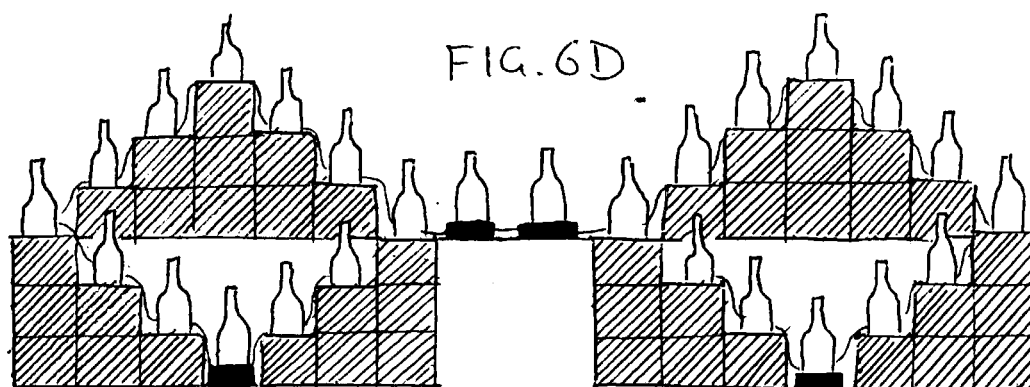


FIG. 6D

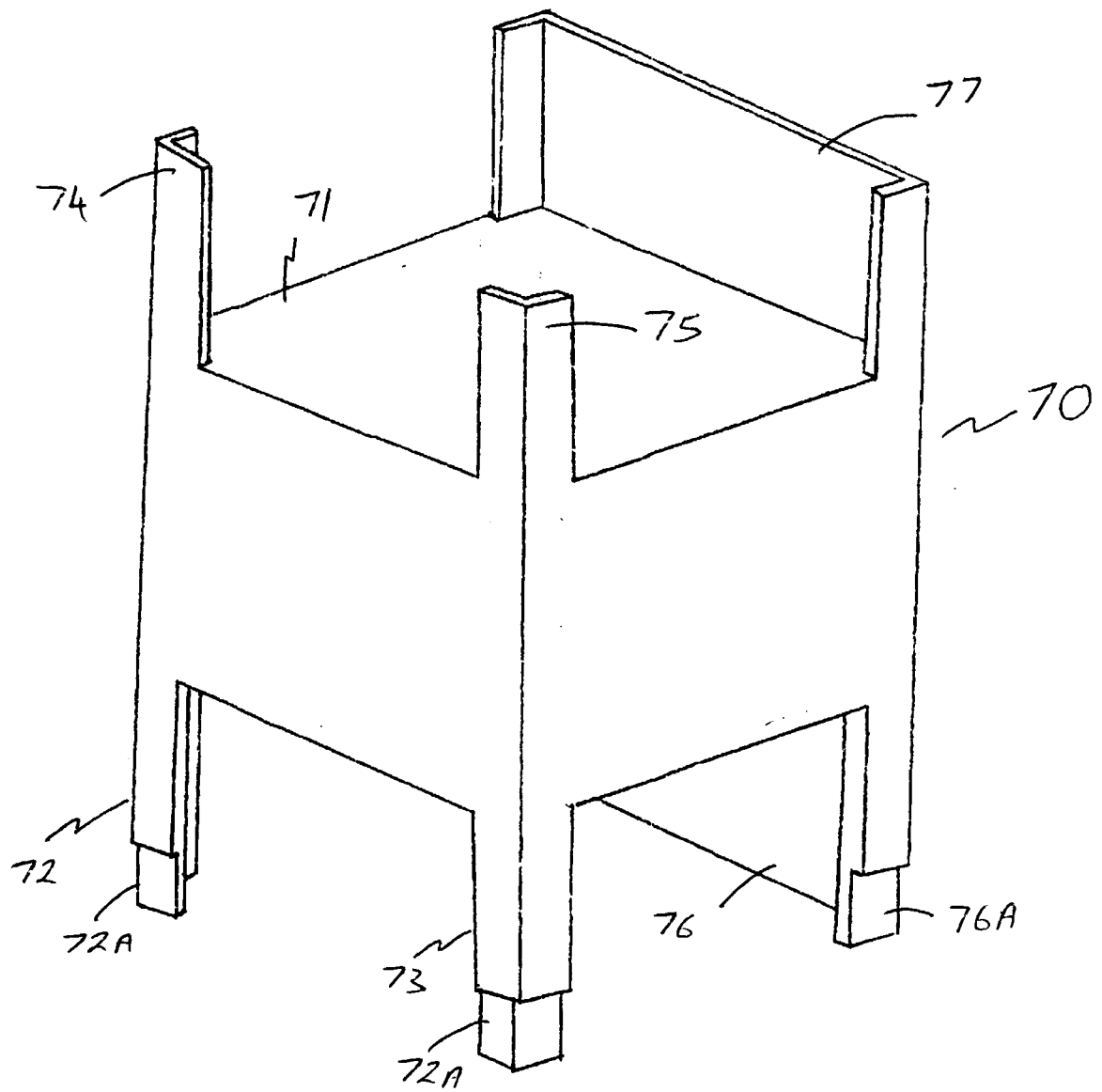


FIG. 7

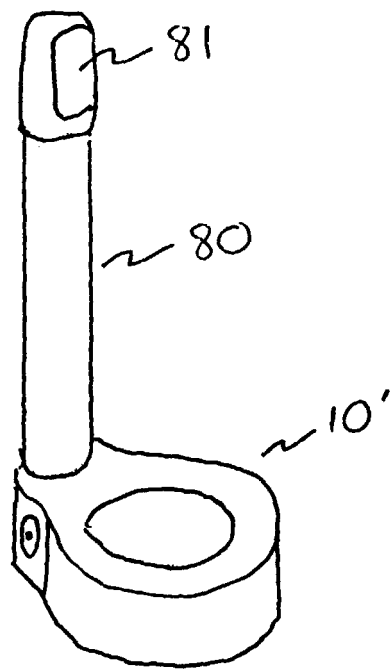


FIG. 8