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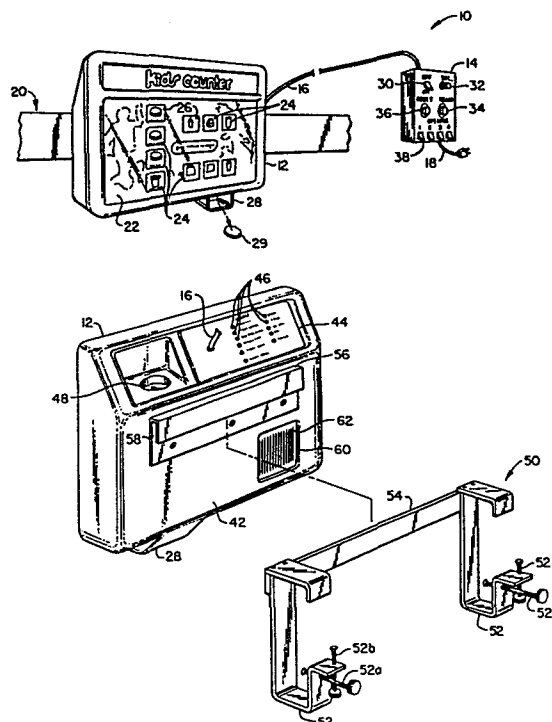
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Menu selection device for children.

A device, including a panel (22) in which is mounted a number of finger depressable switches (24), a display mechanism (44), and control circuitry, is mounted to, for example, a counter of a fast food restaurant to allow small children to select menu items by depressing appropriate ones of the switches (24). Each switch (24) has appropriate indicia (26) indicating the menu items selectable by the switch (24). The display mechanism lights the switch (24) to indicate the selection and provides indicia (46) to an order taker of the selections made. The device further includes a sound generator (62) for producing a sequence of tones indicating the end of the order and a token vending mechanism (28) to dispense a token (29) or other novelty item, also triggered at the end of the order.



MENU SELECTION DEVICE FOR CHILDREN .

5 This invention relates to apparatus that can be
removably attached to the order counter of, for example, a
fast food establishment for allowing small children to
effect, on their own, selection of the menu-items offered by
the establishment.

BACKGROUND OF THE INVENTION

10 As many parents today know, one of the highlights
of a young child's life is a visit to the local fast food
type restaurant. Many such visits are probably initiated at
the pleading and insistence of the youngster, a fact which
does not go unnoticed by many fast food establishments.
15 Witness, for example, the present-day advertising directed
specifically to small children. Fast food restaurants are
aware that the child's delight centers, in part upon what is
purveyed: hamburgers, milkshakes, soft drinks, and like
fare. However, they are also aware that children are enticed
20 by other factors such as amusing and child pleasing decors,
gifts and similar attractions.

Young children, typically being short, are for the
most part isolated, if not intimidated, by tall counters from
the experience of placing their own orders. Since much fast
25 food marketing strategy is child or family oriented, an
accommodation of children in this regard would certainly be a
promotional as well as a psychological advantage.

SUMMARY OF THE INVENTION

The present invention provides a device that allows small children to enjoy the experience of directly selecting the menu-items they desire from a plurality of such menu-items. The invention is inexpensive to manufacture and easy to use by both the child and the fast food establishment.

According to the present invention there is provided an amusing and novel menu selection device operable by young children comprising a housing having an outward facing front panel that carries a number of finger depressable buttons, a rear facing display that provides information respecting menu-item selected, and control circuitry, including a microprocessor, to monitor the switches to determine which have been depressed and what selections have been made. The finger depressable switches are structured to be easily operable by young children and each identified as corresponding to a particular menu-item offered by the fast food establishment. Activation of each switch correspondingly activates indicia on the rear facing display to inform an order taker of the selection made by the child. The housing contains a dispensing mechanism, operable by the control circuit, for distributing a gift token for the child when the selections have been made and a tone generator, also controlled by the control mechanism, for producing a sequence of tones representing, for example, a recognizable theme of the particular establishment.

In the preferred embodiment, each finger depressable switch is separately identified by indicia in the form of a pictorial representation of menu-item orderable by the switch. The finger depressable switch used by the invention is of a type fabricated from lamination of plastic sheets carrying metallic deposits structured to be shorted together and effect switch closure when pressure is applied to the lamination. A number of such switches are carried on a laminated sheet of plastic that is overlaid with another flexible sheet carrying the artwork desired for the front panel, including the menu-item indicia. The artwork is registerable with the switches, so that when a child presses

the indicia corresponding to the menu-items desired to be selected, switch closure is effected.

Operation of the invention is quite simple: the child selects particular menu-items he or she desires by merely applying pressure to the representation imprinted upon the front panel and overlying each switch. Illuminants are provided to light the switch, indicating that the menu-item corresponding to the switch has been selected. In addition, a corresponding illuminant is provided for each selection on the rear facing display to inform the order taker of the child's selections. When the child is finished, the order taker confirms the selections with the parent, rings up the order on a cash register, and resets the display, causing the tone generator and vend mechanism to commence operation.

There are several advantages obtained from the present invention. Use of the invention by a child to place his or her own order is an enjoyable and entertaining experience that reinforces the child's desire to return to the restaurant. Thus, the invention functions as a valuable marketing tool for the establishment.

Additionally, the invention is simple to use by children. By providing finger depressable switches that are easily manipulated by a child, each switch being identified by a menu-item with which it is associated, the child can enter an order purely by visual association with the food item/switch combination.

The invention is also simple to use by employees of the establishment (i.e., the order taker). It is easily mountable or demountable to the existing counter facade and includes replaceable artwork so that menu choice changes, collateral artwork theme, or both, can be modified or changed with a minimum of effort by merely replacing the plastic artwork overlay. Further, the order taker need only look at the lights of the rear panel and determine exactly what selections the child has made. He can then confirm those selections with the parent, avoiding possible misinterpretation of an order that can occur when given verbally.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the menu selection device of the present invention;

Fig. 2 is a perspective view of the back of the menu selection device of Fig. 1, illustrating the order taker's display panel and the attachment device used to mount the invention to a counter;

Fig. 3 is an exploded view of the major parts of the front panel of the invention of Fig. 1;

Fig. 3A is an illustrative diagram of the structure of one of the finger depressable switches used in connection with the present invention;

Fig. 4 is a block diagram of the electronic circuitry used to operate and control the various functions performed by the invention of Fig. 1;

Fig. 5 is a simplified schematic of the circuit used to control a DC motor that operates the token dispensing apparatus;

Fig. 6 is a simplified schematic of the tone generator used in connection with the present invention; and

Fig. 7 is an illustration of the dispensing mechanism used by the present invention to distribute a gift tokens.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to Fig. 1, the menu selection device of the present invention, generally designated with the reference numeral 10, is shown as including a housing 12 and a control box 14 interconnected by an electrical cable 16. Electrical power is supplied to the invention by a power cord 18 that conducts electrical current to the control box 14 from conventional electrical outlets (not shown). Electrical power to the electronics contained within the housing 12 is conducted from the control box 14 via appropriate electrical conductors contained within the cable 16.

The housing 12 is shown as being mounted to a counter 20 and includes an outward facing front panel 22 that is constructed to carry a number of finger depressable switches 24. Associated with each switch 24, and preferably

located directly over each switch, is artwork indicia 26 in the form of, for example, food item representations available for ordering, such as hamburgers, milkshakes, soft drinks, french fries, and the like. In addition, the front panel can
5 also include artwork having a correlation with a particular theme or logo used to identify the particular fast food restaurant in which the invention is used.

At the bottom periphery of the housing 12 there is formed a token dispensing chute 28 used in connection with a
10 token dispensing mechanism for providing a token 29 when the selection of the menu items desired has been completed by the child. The tokens 29 are in the shape of a circular disk, preferably having a diameter of 1.5 inches or greater to keep them from being swallowed by the more junior users of the
15 invention. The tokens 29 obviously could have the establishment's logo or other marketing material imprinted thereon.

The control box 14 carries a number of control switches operable by the order taker such as, for example, an on/off switch 30, a volume control 32, vend and reset buttons
20 34 and 36, respectively, and four option switches 38. The operation and function of these switches will be described more fully below.

The back 42 of the housing 12, illustrated in Fig. 2, is provided with a display panel 44, located at the
25 top portion of the housing 12. Mounted in the display panel is a plurality of illuminants 46 such as, for example, light emitting diodes (LEDs), there being an illuminant 46 for each finger depressable switch 24. Each illuminant 46 is provided with indicia keyed to identifying the menu-items selectable
30 by activation of the corresponding finger depressable switches 24. Depression of a switch 24 will cause one of the illuminants 46 to light, informing the order taker of the choice or choices made. Also located on the top portion of the housing 12 is an aperture 48 that communicates with the
35 token dispensing mechanism (Fig. 7) contained within the housing 12 to allow one to supply the dispensing mechanism with tokens.

The housing 12 is removably mounted to the front facade of a counter 20 by an appropriately structured clamp mechanism such as that designated by the reference numeral 50 in Fig. 2. Of course, the particular type of clamp structure used will depend in the main upon the configuration of the counter, and the clamp illustrated here is representative only. The clamp mechanism 50 of Fig. 2 includes a pair of individual "C clamps" 52 held in spaced parallel relation by a flat spacer bar 54. Each C clamp 52 carries a horizontal clamp screw 52a and a vertical clamp screw 52b to cooperatively operate with the structure of the C clamp 52 to affix and hold the clamp mechanism 50 to a counter.

Attached to the back 42 of the housing 12 is a channel member 56 having a channel 58 that opens downward and is dimensioned and configured to receive the flat spacer bar 54 of the clamp mechanism 50. With the clamp mechanism attached to a counter, the housing 12 may then be quickly and easily mounted by merely slipping the channel member 58 over the spacer bar 54.

Also formed in the back 42 of the housing 12 is an aperture 60 in which is mounted an audio speaker 62.

The front panel 22, illustrated in greater detail in Fig. 3, is an assembly that includes a frame 64 to which is mounted, in registered relation with the frame, a pair of transparent support plates 66 and 68, preferably fabricated of a stiff plastic such as that sold by Rohm & Haas Company under the trademark PLEXIGLAS. The support plate 66 is provided with apertures 67 to, as will be seen, allow access to the finger depressable switches 24. Sandwiched between the support plates 66 and 68, when mounted to and behind the frame 64, are a pair of sheets of flexible material 70 and 72. The outer surface 71 of the flexible material 70 has imprinted thereon the desired artwork, including the menu-item indicia 26. The second sheet of flexible material 72, located behind (relative to the frame 64) the artwork sheet 70, carries the finger depressable switches 24. The menu-item indicia 26, imprinted upon the surface 71 of the artwork sheet 70 are located so that when the front panel 22 is

assembled, each of the indicia 26 overlies and is substantially in registration with the finger depressable switches 24 carried by the flexible material 72. In turn, the apertures 67 are formed in the front support plate 66 at locations that allow the apertures to be in registration with the menu-item indicia 26 and the underlying finger depressable switches 24. The artwork carried by the flexible sheet 70 is viewable through the opening 63 formed in the frame 64 and the transparent support plate 66. As noted earlier, access to the switches 24 is provided by the apertures 67.

Mounted to the back surface 68a of the support plate 68 are illuminants 22', one for each switch 24/indicia 26 combination. The illuminants 24' are relatively located behind each switch/indicia combination so that when a switch 24 closure is effected, the corresponding illuminant 22' is activated. The light produced by the activated illuminant 22' radiates through the lamination to indicate to the child that the menu-item associated with the switch has been selected.

Each finger depressable switch 24 is identically structured. Illustrated in Fig. 3A, is one such finger depressable switch 24, shown as being formed from a lamination of at least three layers 72a, of a preferable flexible, non-conductive material 72a, 72b, and 72c. Deposited on opposing faces of the layers 72a and 72c are electrically conductive patterns 74, 76, respectively. The conductive pattern 74 forms a pair of parallel electrical leads 78a and 78b, each terminating in a plurality of parallel extensions 80, the extensions 80 of lead 78a alternating with the those of 78b in a side-by-side, grid-like configuration. The electrical leads 76a and 76b, as well as their respective extensions 80, are electrically isolated from one another by the non-conductive plastic layer 72a upon which they are deposited.

The conductive pattern 76 is formed from a number of short, parallel lines 81, oriented (when the layers 72a, 72b and 72c are assembled) transverse the extensions 80 of the conductive pattern 74. Interposed between the two layers

72a and 72c is the non-conductive 72b; and formed in the layers 72b for each pair of conductive patterns 74 and 76 is an aperture 82.

When the layers 72a, 72b and 72c are assembled,
5 forming the entire flexible sheet 72 (Fig. 3), each finger depressable switch 24 includes the deposited pair of conductive patterns 74 and 76 situated in overlying registration, with the extensions 80 running substantially perpendicular to the short lines 81. The extensions 80 and short, parallel
10 lines 81 of the conductive pattern 74 and 76, respectively, are held in spaced and electrically isolated relation by the interposed plastic sheet 72b.

Operation as a switch is effected by placing pressure on one or the other of the plastic layers 72a or 72c, at
15 a point over one of the conductive patterns 74 or 76 to cause that pattern to protrude through the aperture 82 and come into contact with the opposing pattern. This causes at least some of the adjacent extensions 80 to be shorted together by the conductive pattern 76, thereby effecting a switch closure
20 that forms a current conducting path between the electrical leads 78a and 78b. The electrical leads 78a of each finger depressable switch 24 can be electrically connected to one another and a common ground. Each electrical lead 78b of each switch 24 then forms the signal lead for each switch.
25 The total of the electrical leads 78b from all finger depressable switches 24 then form a group of signal lines 117, 118 (Figs. 3 and 4) that communicate the switches to the control circuitry described below.

Turning now to Fig. 4, there is illustrated the
30 circuitry, in block diagram form, that controls the operating functions of the invention. Although not specifically shown, it should be understood that the circuitry illustrated in Figs. 4-6, as well as the token dispensing mechanism (Fig. 7), are mounted as appropriate within the housing 12. Fig. 4
35 illustrates a control circuit 90 that includes a micro-processor unit (MPU) 92 which is operably coupled to a program ROM 94 by address and data buses 96 and 98, respectively. The program ROM 94 contains the operating program

used by the MPU 92, which is the heart of the control circuit 90, to perform such functions as activation of illuminants and operation of the motor circuit used to control the token dispensing mechanism in response to closure or activation of the finger depressable switches 24. The MPU 92 is also coupled to a peripheral interface adapter (PIA) 100 via the address bus 96 and data bus 98, which are respectively applied to the address (A) and data (D) inputs of the PIA 100.

PIA 100 is of conventional design, normally sold under the generic part number 6532 by a number of integrated circuit manufacturers such as, for example, MOS Technology, Inc. of Norristown, Pennsylvania. The PIA 100 is structured to function as an input/output device that acts as an interface between the MPU 92 and the other elements of the system, such as, for example, the illuminants used in the various displays and the finger depressable switches 24. The PIA 100 has two 8-bit input/output (I/O) ports PA and PB which can be "programmed" by the MPU 92 to act either as an input or an output port. In the present invention, the I/O port PB is used as an input port to receive information conducted from a multiplex unit (MPX) 102 via an 8-bit bus 104. The I/O port PA is used as an 8-bit output port that is connected to a motor control circuit 108, an audio circuit 110 and illuminant driver circuits 112. The illuminant driver circuits 112, in turn, are coupled to the illuminants 22' and 46 mounted in the front and rear panels 22 and 44, respectively of the housing 12.

The input signals received at the 8-bit I/O port PB of the PIA 100 are generated by the 10 selection switches 24' (mounted in the front panel 22 - Fig. 1), the vend switch 34 and the four option switches 38 carried by the control box 14 (Fig. 1) and a position sensor 114. A group of eight signal lines 116 communicate eight of the switches 24 to the 8-bit A input of the MPX 102. Two remaining signal lines 118 communicate two of the switches 24 to two of the eight available B inputs of MPX 102. Conducted to the remaining six B input are the signal line 120 from the vend switch 34, four signal lines 122 from the four option switches 38, and a signal line

124 from the position sensor 114. Selection between the A or B 8-bit inputs of the MPX 102 is effected by the single address line 96a from the address bus 96 which is applied to the select (S) input of the MPX 102. Depending upon the
5 binary state of the signal applied to the S input, one or the other of the signals applied to the A or B inputs will be conducted to the eight Y outputs of the MPX 102 and applied to the PB input port of the PIA 100.

Illustrated in greater detail in Fig. 5 is the
10 motor control circuit 108 used to operate the token dispensing mechanism of Fig. 7. The active elements of the motor control circuit 108 are an inverter 130, transistor Q1, and protection diodes D1 and D2. A signal line 108a conducts one of the output bits from the I/O port PA of PIA 100 to the
15 input of the inverter 130. The output of the inverter 130 is connected to the base lead of the transistor Q1 via a base resistor R1. A biasing resistor R2 connects the output of the inverter 130 to the +5 volt supply voltage. The emitter lead of the transistor Q1 is tied to ground G, and the col-
20 lector lead the transistor is connected to the negative (-) input of the DC motor 126. The diode D1 is connected across the collector-emitter leads of the transistor Q1 and diode D2 couples the collector of the transistor Q1 to the +10 volt supply voltage. Both diodes D1 and D2 function to protect
25 the transistor from large transient voltage spikes that may be produced by the DC motor 126.

The transistor Q1 is operated as a switch enable or disable the DC motor 126. When the transistor Q1 is turned on by a logic ZERO on signal line 108a, a current path for
30 the +10 volt motor supply voltage is provided for the DC motor 126 to thereby cause the motor to operate. Alternately, a logic ONE on the signal line a will turn off the transistor Q1, breaking the current path to ground for the DC motor supply voltage and disabling the DC motor 126.

35 Fig. 6 illustrates, in simplified form, the audio circuit 110 used to generate the desired audio tones. A signal line 110a conducts an output bit from the I/O port PA of the PIA 100 to the base of a transistor Q2 via a base

resistor R3. A biasing resistor R4 interconnects the signal line 110a with the +5 volt supply voltage. The emitter lead of the transistor Q2 is connected directly to ground G, and the collector lead is tied to the +5 volt supply voltage via the collector resistor R5 and to the base of driver transistor Q3 via a diode D3. The collector of the transistor Q3 is tied directly to the 10 volt supply voltage, while the emitter lead connects the transistor directly to an input 132 of the speaker 62.

The audio circuit 110 is operated by the MPU 92 by periodically writing a multi-bit data word to an output register (not shown), internal to the PIA 100, which is coupled to I/O port PA. A predetermined bit of the data word corresponds to the audio circuit 110, and is conducted there- to by the signal line 110a. The bit corresponding to the audio circuit 100 is set to a logic ONE, then a logic ZERO, back to a logic ONE, and so on to produce a squarewave on the signal line 110a that "toggles" at a predetermined rate that is approximately the frequency of the tone desired to be generated. The squarewave is smoothed, shaped (somewhat), and amplified by the audio circuit 110, and applied to the speaker 62 which produces the audio desired.

Illustrated in Fig. 7 is the token dispensing mechanism which operates to distribute one of the cylindrical tokens 29 at the completion of a child's selection. As shown, the DC motor 126 is mounted interior of the housing 12 by an appropriate bracket 138 and operates to rotate a drive gear 140 about its axis via the motor shaft 128. The drive gear 140 engages the periphery of a horizontal geared dispensing disk 142. The dispensing disk 142 is rotatably mounted to the top surface 144a of a plate 144 by a bolt 146 that passes through the dispensing disk and into the plate 144. Formed in the dispensing disk is a token receiving aperture 148, sized and dimensioned to receive a single token 29. Imbedded in the dispensing disk 142, somewhat upstream (when rotated in the direction of the arrow 147) of the aperture 148 is a small magnet 150 used, as will be seen, to determine when the dispensing disk 142 has made a complete rotation.

A horizontal plate 144 has formed therein an opening 154, positioned so that rotation of the dispensing disk 142 will bring the aperture 148 into concentric relation with the opening. Further, the opening 154 is sized so that
5 a token will freely drop from the apparatus 148, through the opening and into the dispensing chute 28 located therebeneath.

Mounted on a top surface 144a of the horizontal plate 144, and proximate the periphery of the dispensing disk
10 142, is the position sensor 114 comprising a sensor mount 156 carrying a hall effect sensor 158. The hall effect sensor is positioned immediately above the dispensing disk 142, proximate its periphery and at a location which will allow the magnet 150 to pass therebeneath when the dispensing disk is
15 rotated.

Positioned immediately above the dispensing disk 142 is a token tube 164 for receiving and holding a plurality of the tokens 29 in vertically stacked relation. The token tube 164 is fixedly mounted interior of the housing 12 via
20 any appropriate mounting apparatus such as, for example, a metal band 166 that is secured at its ends to the housing 12 by appropriate fastening bolts 168.

The token tube 164 is positioned parallel to the axis of the dispensing disk 142 and located relative to the
25 dispensing disk so that the dispensing aperture 148 can be moved to a position immediately below the tube to receive tokens 29 contained in the tube, one at a time. Preferably, the thickness of the dispensing disk 142 is dimensioned so that the dispensing aperture 148 (in conjunction with the top
30 surface 144a of the plate 144) will effect selection of only one of the tokens when the aperture is moved to a position underlying the token tube 164.

Although not specifically shown, it should be understood that the token tube 164 is relatively located
35 within the housing so that the upper opening 165 is positioned to communicate with the circular opening 48 (Fig. 2). Thereby, tokens can be inserted in the token tube 164 without having to open the housing 12.

The token dispensing mechanism of Fig. 7 operates in the following manner: The dispensing disk 142, which is normally in a position that places the dispensing aperture 148 beneath the token tube 164, is caused to be rotated in the direction of the arrow 147 by the DC motor 126 via the drive chain of the motor shaft 128 and drive gear 140. Rotation ultimately moves the dispensing aperture 148 (containing a single selected token) into generally concentric relation with the opening 154 in the plate 144. The token 29 then drops from the dispensing aperture 148 into and through the opening 154. The opening 154, of course, is positioned relative to the housing 12 structure so that as the token 29 drops through the opening, it will drop into the dispensing chute 28, where the token can be retrieved by the child.

The DC motor 126 continues rotation of the dispensing disk 142 in the direction of the arrow 147 until the dispensing aperture 148 is moved to position beneath the token tube 164. When the dispensing aperture 148 and token tube 154 are in generally concentric relation, the aperture will receive one of the tokens 29 contained by the token tube. The dispensing disk 142 continues rotation until the small magnet 150 passes beneath the hall effect sensor 158 of the position center 114. The small magnetic field of the magnet 150 is detected by the hall effect sensor 158 which, in turn, generates an electrical signal. The generated electrical signal is conducted by the signal line 124 to one of the input bits of the input port PB of PIA 100 where it is read by the MPU 92 (Fig. 4). The MPU 92 then disables the DC motor, causing rotation of the dispensing disk 142 to cease.

The menu selection apparatus 10 is operated as follows: The clamp mechanism 50 is first secured to the facade of counter 20 utilizing, as appropriate, the horizontal and vertical clamp screws 52a and 52b, respectively. When the C clamp 50 is firmly in place, the housing 12 is then mounted to the clamp mechanism 50 by slipping the channel members 56, attached to the back of housing 12, over the flat bar 54.

So mounted, the power cord 18 (Fig. 1) can be plugged into an appropriate receptacle and the on/off switch 30 placed in the on position. Appropriate electrical power is conducted to the electronics contained within the housing 12 via the cable 16. Activated, the MPU 92 begins monitoring the selection switches 24 by formulating appropriate address signals that are conducted to the PIA 100 and MPX 102 via the address bus 96, including the signal line 96a. As mentioned, the state of the signal on the signal line 96a effects selection of which of the inputs A or B of the MPX 102 is conducted to the PIA 100 and read by MPU 92.

A child enters his or her selection by merely putting pressure on the indicia 26 representing the desired menu item and covering one of the finger depressable switches 24. Such pressure will cause activation of the switch 24 in the manner described above. Activation of the switch 24 causes a signal to be generated that is read by the MPU 92. This causes the MPU 92 to formulate a multi-bit data word that is written to and temporarily stored in an internal output register (not shown) of the PIA 100. The content of this internal output register is applied to the output port PA and conducted to the motor circuit 108, audio circuit 110, and illuminant driver circuits 112 via the respective signal line 108a, 110a and 112a. The formulated data word, and the signals communicated therefrom, function to enable or disable the motor or audio circuits 108, 110 and to light the appropriate illuminants 22' and 46 corresponding to the selection switch 24 depressed by the child. The data signals communicated to the illuminant driver circuits 112 via the 6 signal lines 112a are in a coded format, which are decoded by the illuminant driver circuits 112 to cause the pair (i.e., front panel and rear panel) illuminants corresponding to the activated selection switch to light.

When the child has finished entering his or her selections, the order taker then can confirm the order with the child's parents. If the child's order is confirmed, the order taker punches the vend button 34 on the control box 14 to set in motion the following operations: First, the MPU

92, upon detecting activation of the vend switch 34, writes an appropriate multi-bit data word to the internal output register (not shown) of the PIA 100. The bit structure of this newest data word will turn off selected illuminants, and
5 activate the motor circuit 108 and audio circuit 110. The motor circuit 108, in turn, enables the DC motor 126 and operation of the token dispensing mechanism: The DC motor 126 rotates the dispensing disk 142 to cause a token 29 to be dropped into the token dispensing chute 28 (Fig. 1) where it
10 can be retrieved by the child.

At the same time, the MPU 92 periodically changes the multi-bit data word held by the internal output register (not shown) of the PIA on a periodic basis. This is accomplished, as described above, by formulating and writing a
15 data word having the bit that corresponds to the audio circuit alternately changing between one logic state and another. At the same time, the other bits of the data word that correspond to the motor circuit 108 and illuminant driver circuit 112 remains unchanged, keeping the DC motor 126 in
20 operation until the MPU 92 detects a signal generated by the position sensor 114, indicating that the token dispensing cycle is completed. The data bits of the multi-bit data word corresponding to the illuminants are also held in a state that keeps the illuminants turned off.

25 In the event that menu item selections have been erroneously entered, the order taker may reset the apparatus without causing a token to be dispensed or a tune to be generated. In this instance, he merely depresses the reset button 36 which generates a RESET signal that is conducted to
30 the RES input of the MPU 92, causing the MPU 92 to go through an operation that turns off any illuminants that have been lit.

The options switches 38 are utilized to collaterally program the MPU 92 to enable or inhibit certain func-
35 tions of the invention, depending upon the switch position corresponding to that function. For example, one of the options switches 38 corresponds to the token dispensing operation. Placing that switch 38 in one position would

instruct the MPU 92 to cause a token dispensing cycle to be performed each time the order taker activates the vend button 34; placing the option switch corresponding to the dispensing operation in the other switch position would instruct the MPU
5 92 to inhibit the token dispensing cycle. Similarly, another of the option switches can be assigned to enable or disable the audio circuit.

When the menu selection device of the present invention is not being used by a child, the MPU 92 can cause
10 the front panel illuminants 22' to blink randomly as attract mode operation. Of course, this attract mode operation could also be enabled or disabled by a one of the option switches 38.

While the above provides a full and complete dis-
15 closure of the preferred embodiment of the invention, various modifications, alternate constructions and equivalents may be employed without departing from the true spirit and scope of the invention. Therefore, the above description and illustrations should not be construed as limiting the scope of the
20 invention which is defined by the appended claims.

CLAIMS:

1. A menu-item selection device operable by children and mountable to a counter of like structure, characterised by:

5 a housing (12) having means (50) attached thereto for removably mounting said housing to said counter and including an outward facing front panel (22);

 a plurality of finger depressable switch means (24) mounted in said front panel and operable to generate
10 switch signals when depressed;

 indicia (26) carried by said frontpanel for identifying each switch means as corresponding to a selectable menu-item;

 display means (44) for indicating menu item
15 selections when certain ones of said switch means are depressed;

 token dispensing means (28) mounted in said housing for receiving a plurality of tokens (29) and for dispensing a one of said tokens when a child has
20 completed making the desired menu-item selection; and

 control means (90) operably coupled to said switch, display and dispensing means and responsive to said switch signals for causing said display means to indicate the menu item selections made and said dispensing means
25 to dispense a token.

2. The device of claim 1, wherein said tokens are disk-like in configuration and said dispensing means comprises storage means (164) for receiving and holding a plurality of tokens in a registered, vertical array;

5 a disk (142) horizontally mounted below and proximate said storage means and having formed therethrough an aperture (148) sized and dimensioned to receive a one of said tokens from said array, said disk having a central axis and being rotatable about said central axis;

10 motor means (126) operably coupled to said disk and responsive to a motor control signal generated by said control means for rotating said disk between a first position with said aperture located proximate said storage means for receiving one of said tokens and a

15 second position for dispensing said token.

3. The device of claim 2, including sensor means (114) operably coupled to said dispensing means for determining when said disk is proximate said first position.

4. The device of claim 3, wherein said sensor

20 means includes a hall effect device (158) mounted proximate said disk and a magnetic element (150) coupled to said disk, the magnetic element being relatively located to be brought into sensing range of said hall effect device when said disk is rotated.

5. The device of claim 1, including audio signal generating means (110) operably coupled to said control means for generating an audio electrical signal; and sound reproducing means (62) connected to said audio signal generating means for receiving said audio electrical signal and reproducing therefrom an audio tone.

6. The device of claim 1, wherein said indicia includes pictorial representations of the menu items selectable by said switch means.

10 7. The apparatus of claim 1, said housing including a display panel (44) for indicating to an order taker depression of certain of said switch means.

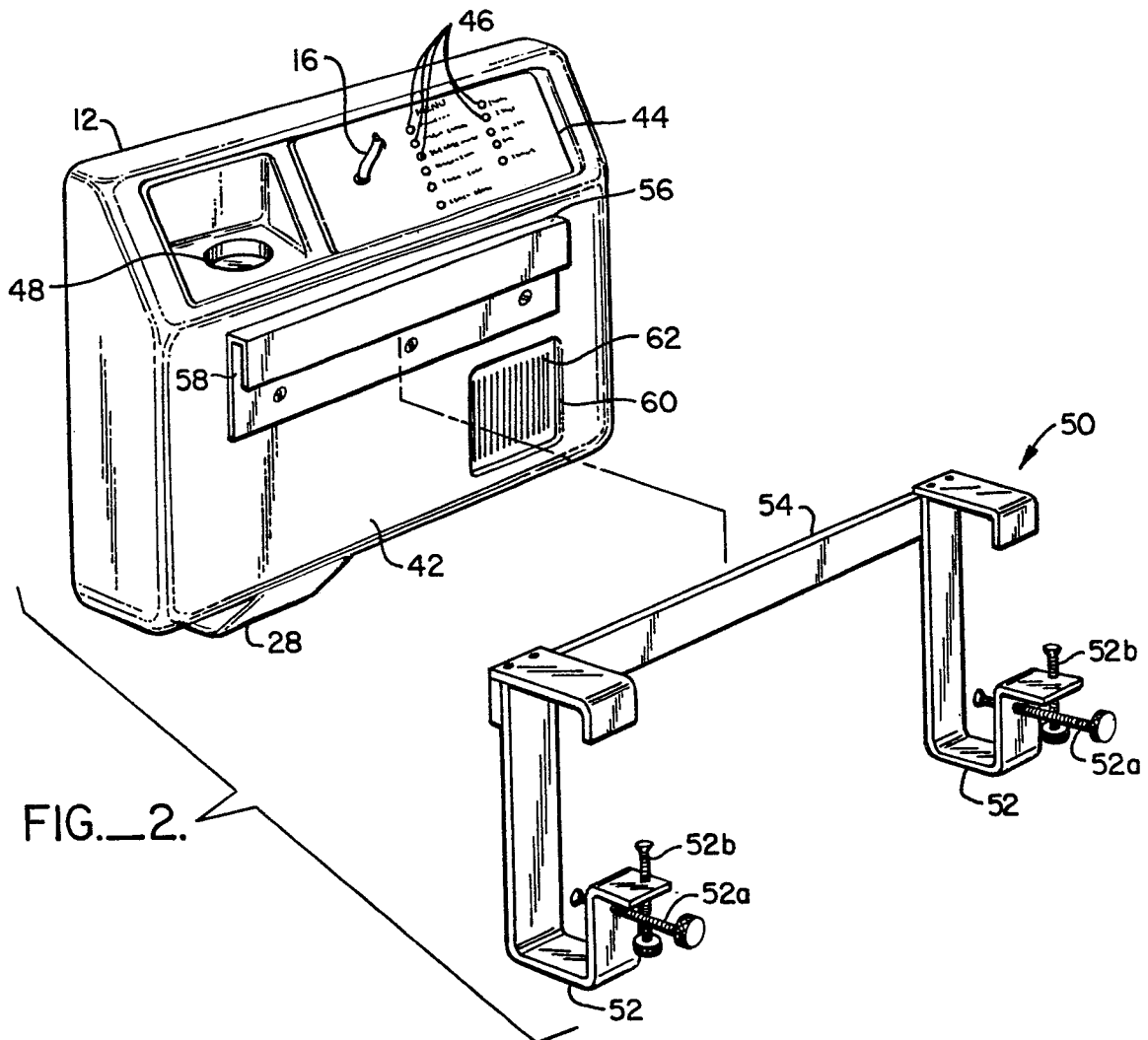
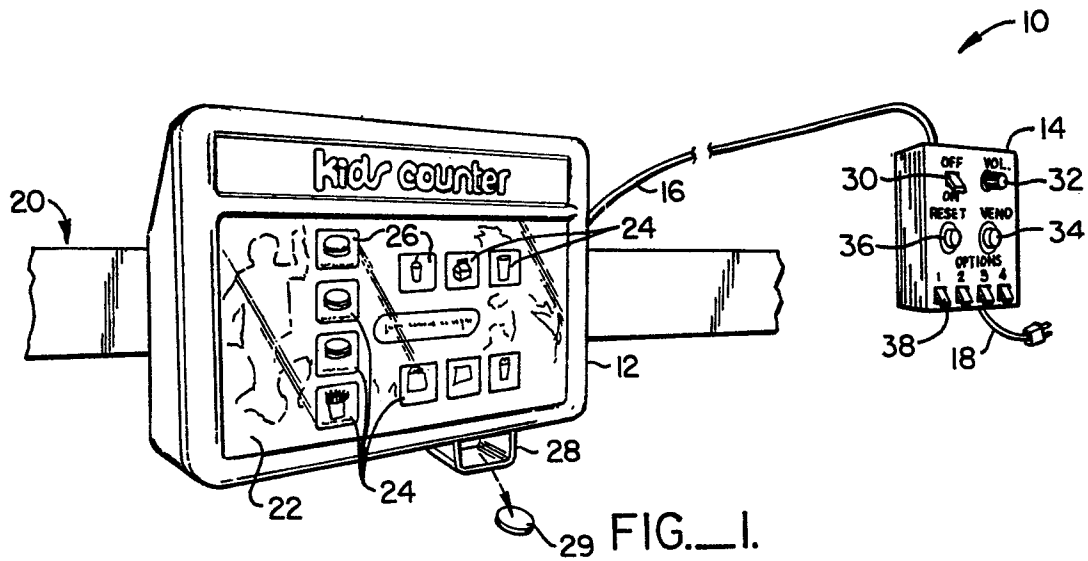
8. The device of claim 6, wherein said indicia is in the form of food item representations.

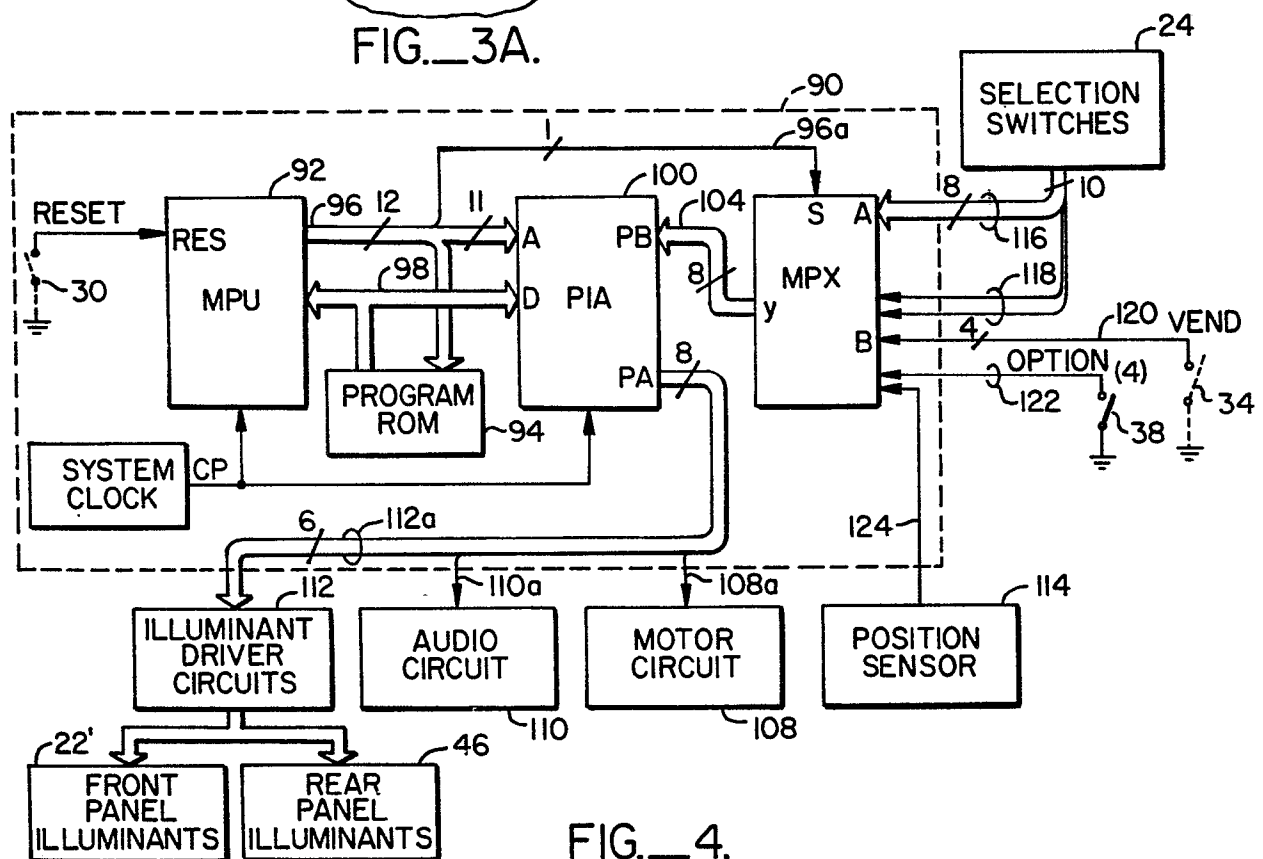
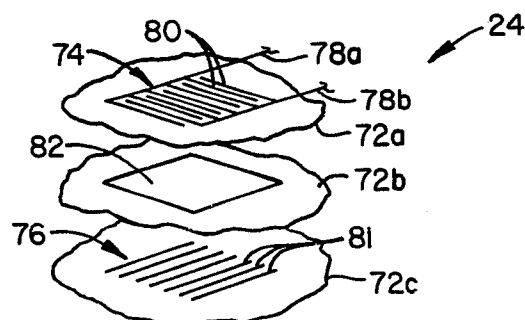
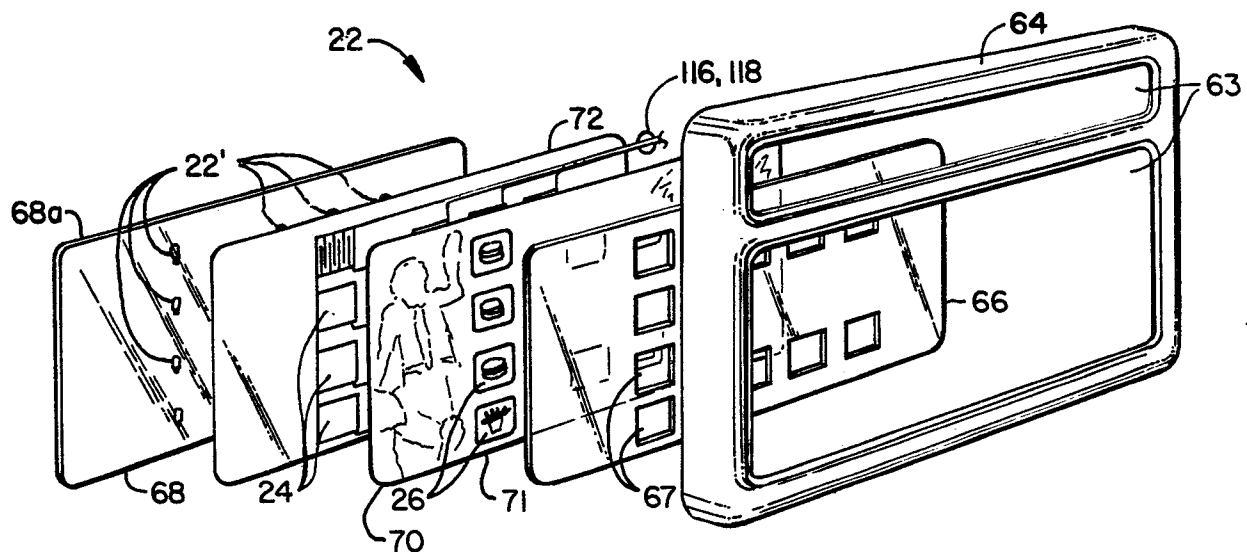
15 9. The device of claim 1, wherein said switch means includes first and second sheets (72a, 72c) of a non-conductive, flexible material having conductive pattern pairs (74, 76) deposited on opposing faces thereof for each individual one of the switch means, the conductive
20 pattern pairs being located in relative registered alignment with one another, and spacer means (72b) interposed between said first and second sheets for holding said conductive pattern pairs in spaced apart

relation and allowing said conductive pattern pairs to be placed in touching relation when a pressure is applied to said first sheet proximate the conductive pattern deposited thereon.

5 10. The device of claim 9, wherein said indicia includes a third sheet (70) of flexible material having imprinted thereon representations corresponding to each of said switch means, said third sheet being situated to
10 overly said first and second sheets with said menu item representations in relative registered alignment with a corresponding conductive pattern pair so that when pressure is applied to a menu item representation said conductive pattern pairs will be placed in touching relation, effecting switch closure.

15 11. A selection device for enabling a child to select and order items on a menu; characterised by
 a housing (12) for mounting on a counter;
 a selection panel (22) presenting a plurality of finger operable switches (24), each having a visual indication
20 (26), corresponding with a respective item on a menu, associated therewith;
 a display (44) controlled by the switches for indicating which item or items have been selected; and
 a dispenser (28) arranged to issue a slip or
25 token (29) for each order.







European Patent
Office

EUROPEAN SEARCH REPORT

0057527

Application number

EP 82 30 0243.1

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<p><u>US - A - 3 962 698</u> (D.N. HUNT et al.)</p> <p>* column 1, line 34 to column 2, line 25 *</p> <p>--</p>	1,6-8, 11	<p>G 09 F 9/00</p> <p>G 08 B 5/36</p>
A	<p><u>US - A - 4 142 216</u> (S.B. GOSS et al.)</p> <p>* column 1, line 44 to column 2, line 14 *</p> <p>--</p>	1,5,11	
A	<p><u>US - A - 4 209 108</u> (E.P. WINANS)</p> <p>* column 1, lines 27 to 53 *</p> <p>--</p>	1	<p>TECHNICAL FIELDS SEARCHED (Int.Cl. 3)</p>
A	<p><u>US - E - 28 557</u> (J.G. WILLIAMS et al.)</p> <p>* claim 6, column 1, lines 29 to 57 *</p> <p>--</p>	2	<p>G 07 D 1/00</p> <p>G 07 F 7/00</p> <p>G 08 B 5/36</p> <p>G 09 F 9/00</p>
A	<p><u>GB - A - 2 014 969</u> (P. LAHTINEN)</p> <p>* claim 1 *</p> <p>----</p>	2	<p>G 09 F 13/04</p> <p>G 09 F 19/00</p> <p>G 09 F 27/00</p>
			<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone</p> <p>Y: particularly relevant if combined with another document of the same category</p> <p>A: technological background</p> <p>O: non-written disclosure</p> <p>P: intermediate document</p> <p>T: theory or principle underlying the invention</p> <p>E: earlier patent document, but published on, or after the filing date</p> <p>D: document cited in the application</p> <p>L: document cited for other reasons</p>
<p><input checked="" type="checkbox"/> The present search report has been drawn up for all claims</p>			<p>&: member of the same patent family, corresponding document</p>
Place of search		Date of completion of the search	Examiner
Berlin		16-04-1982	BOTTERILL