United States Patent [19]

Shattuck

[11] **3,803,580**

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[54] **APPARATUS FOR OPERATION OF INDICATORS AND CONTROLS SHOWN IN A PICTORIAL ILLUSTRATION**

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[21] Appl. No.: **227,539**

[52] **U.S. Cl.**..... **340/324 R,** 340/225, 340/378 R, 340/337

[51] **Int. Cl.**..... **G09f 13/04,** G09f 1/08

[58] **Field of Search**..... 340/324 R, 334, 335, 337, 340/365, 225, 378 R, 380

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Primary Examiner—John W. Caldwell
Assistant Examiner—Marshall M. Curtis

[57] **ABSTRACT**

A housing is provided with an inclined member and an inclined support member. Connectors provided in the support member are connected to selected circuitry of a logic circuit encased in the housing. Display cards, having two-dimensional pictorial illustrations of three-dimensional objects, such as electrical apparatus, are adapted to be supported by the support member for display of the illustrations. Indicators and switches are contained in the cards and are electrically connected to connectors adapted to establish electrical connection to the connectors in the support member. The switches may be hidden behind the illustrations so that upon touching the illustration such as at the region of the depiction of a switch operator, a switch is actuated to operate a selected indicator via the logic circuitry. The indicators are viewable in front of the pictorial illustration. In one form of the invention, a screen is provided on the illustration operable via a light box in the support housing.

23 Claims, 11 Drawing Figures

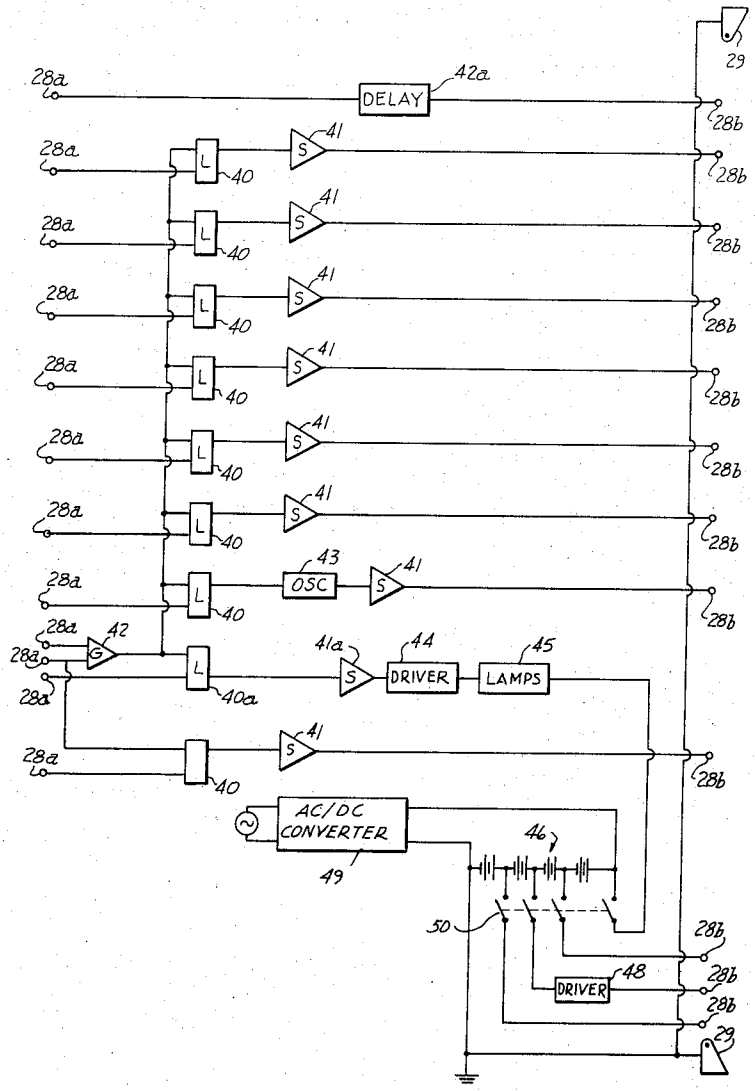


FIG. 1

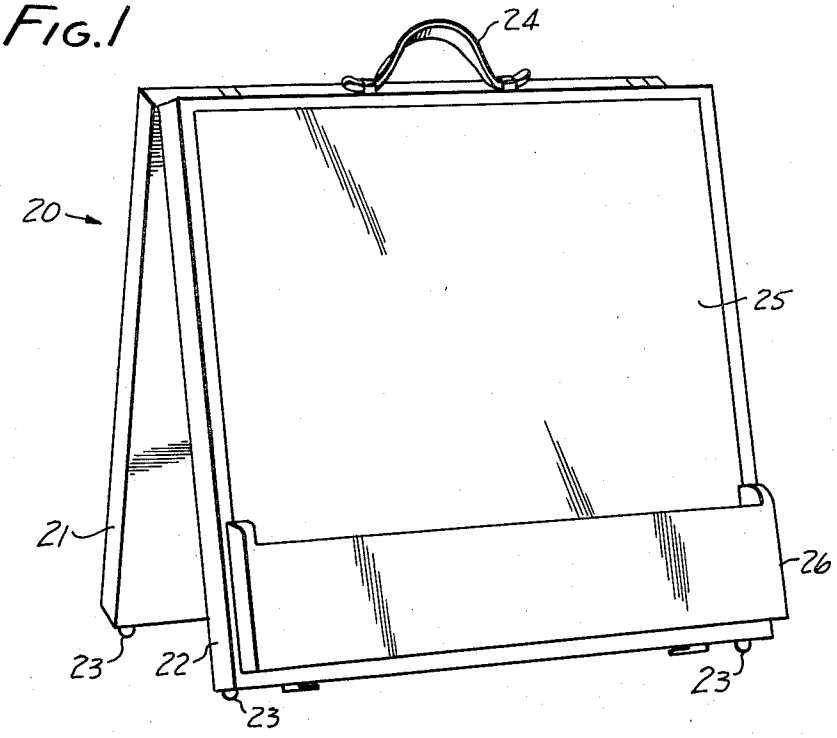


FIG. 2

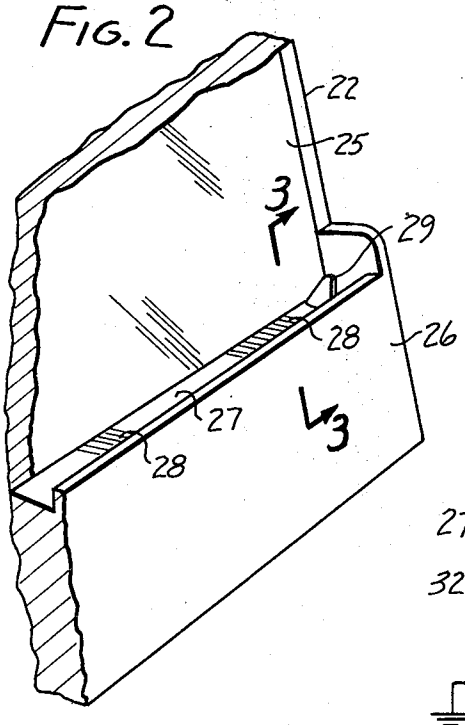


FIG. 3

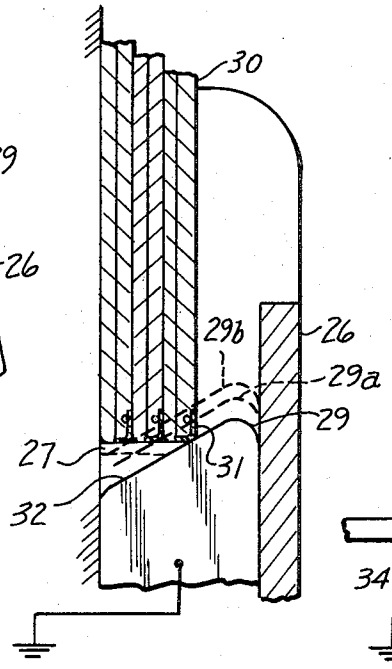


FIG. 4

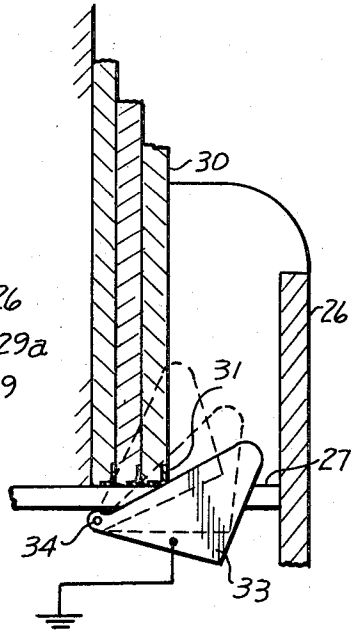


FIG. 5

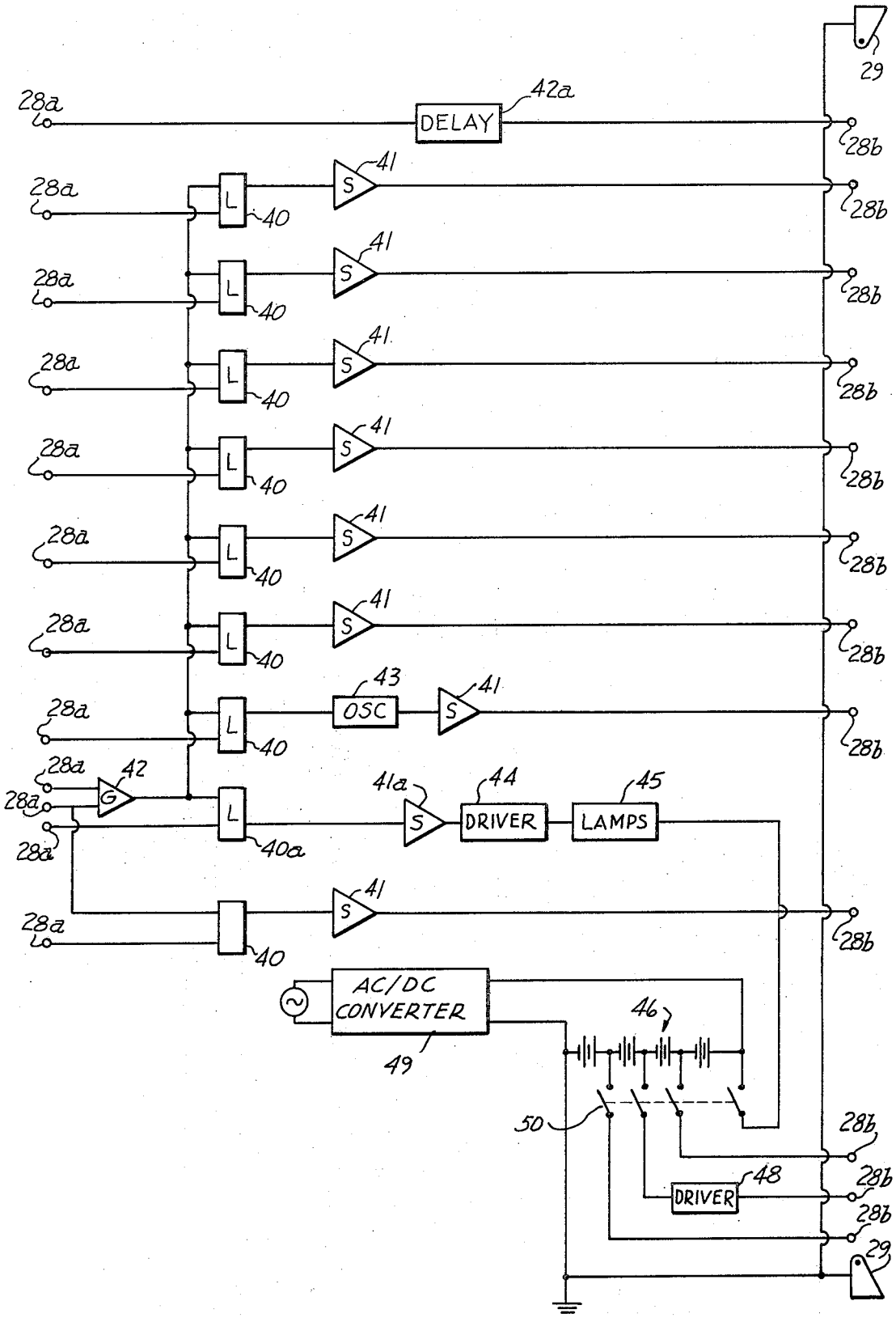

29
28a
42a
DELAY
28b
41
S
L
40
43
OSC
42
G
41a
44
DRIVER
45
LAMPS
40a
AC/DC
CONVERTER
49
46
50
48
DRIVER

FIG. 7



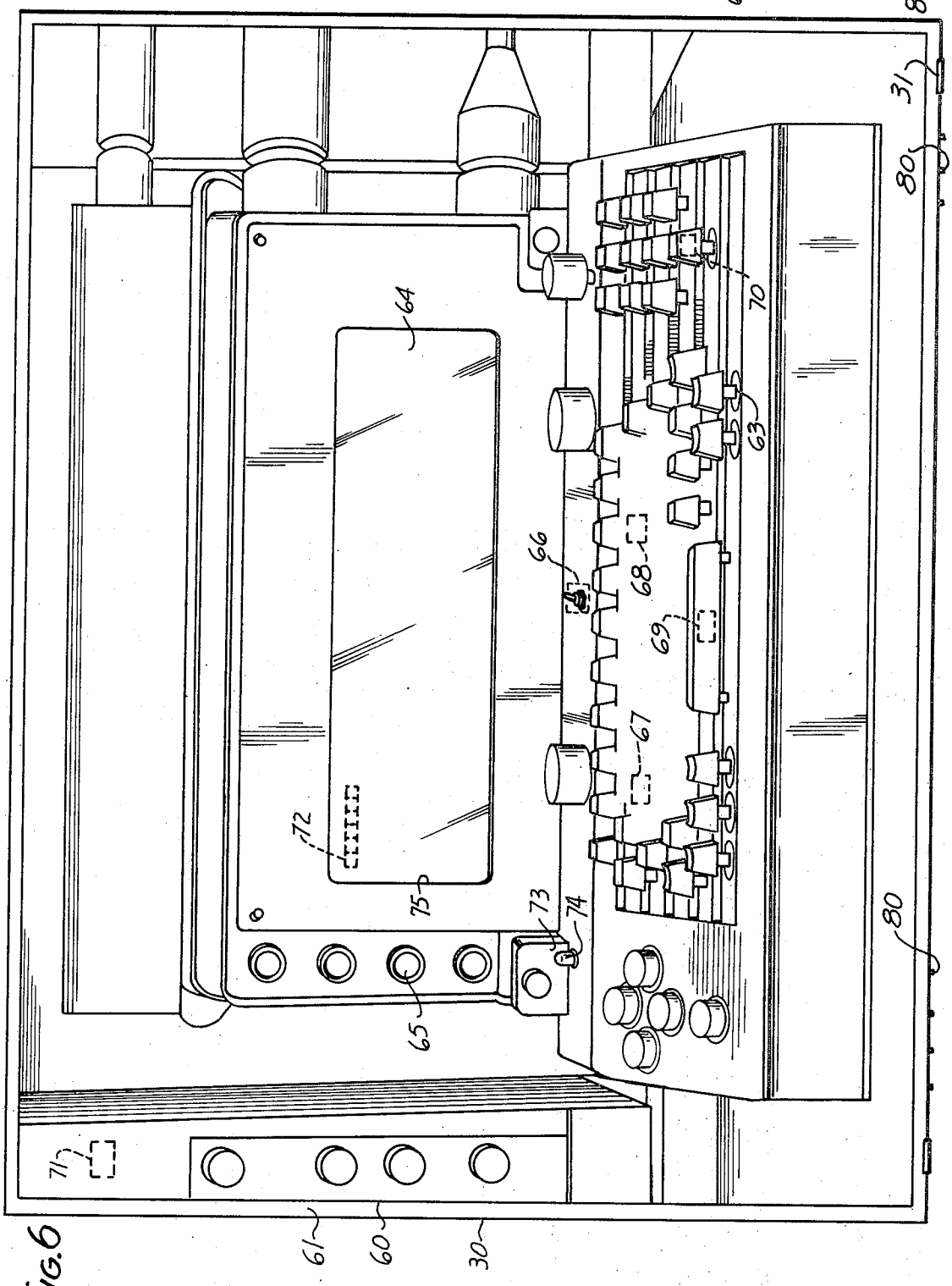


FIG. 6

FIG. 8

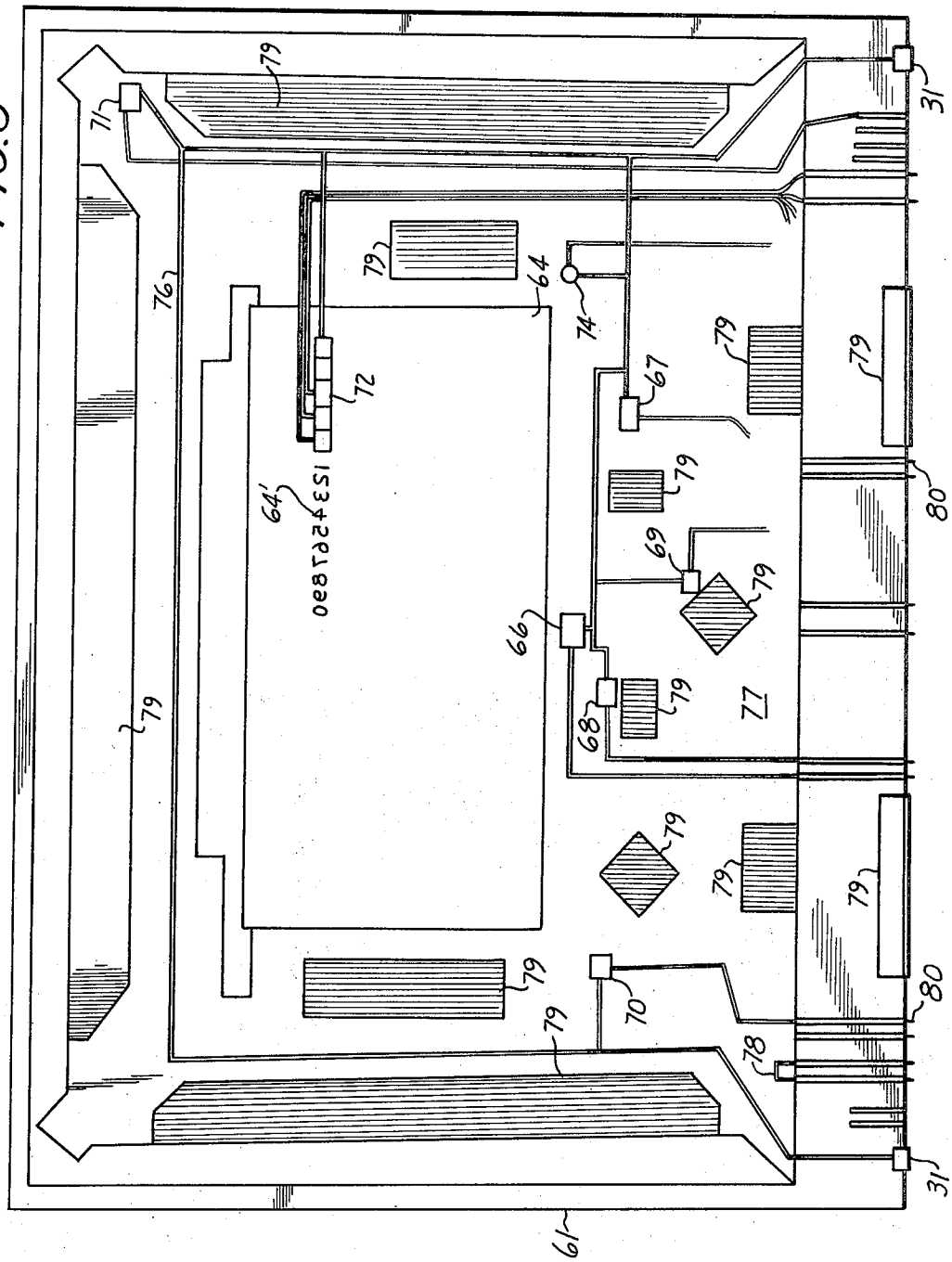
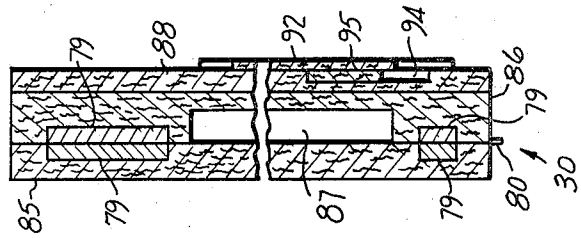


FIG. 10


79
88
92
95
94
86
79
80
30
85
79
87
79

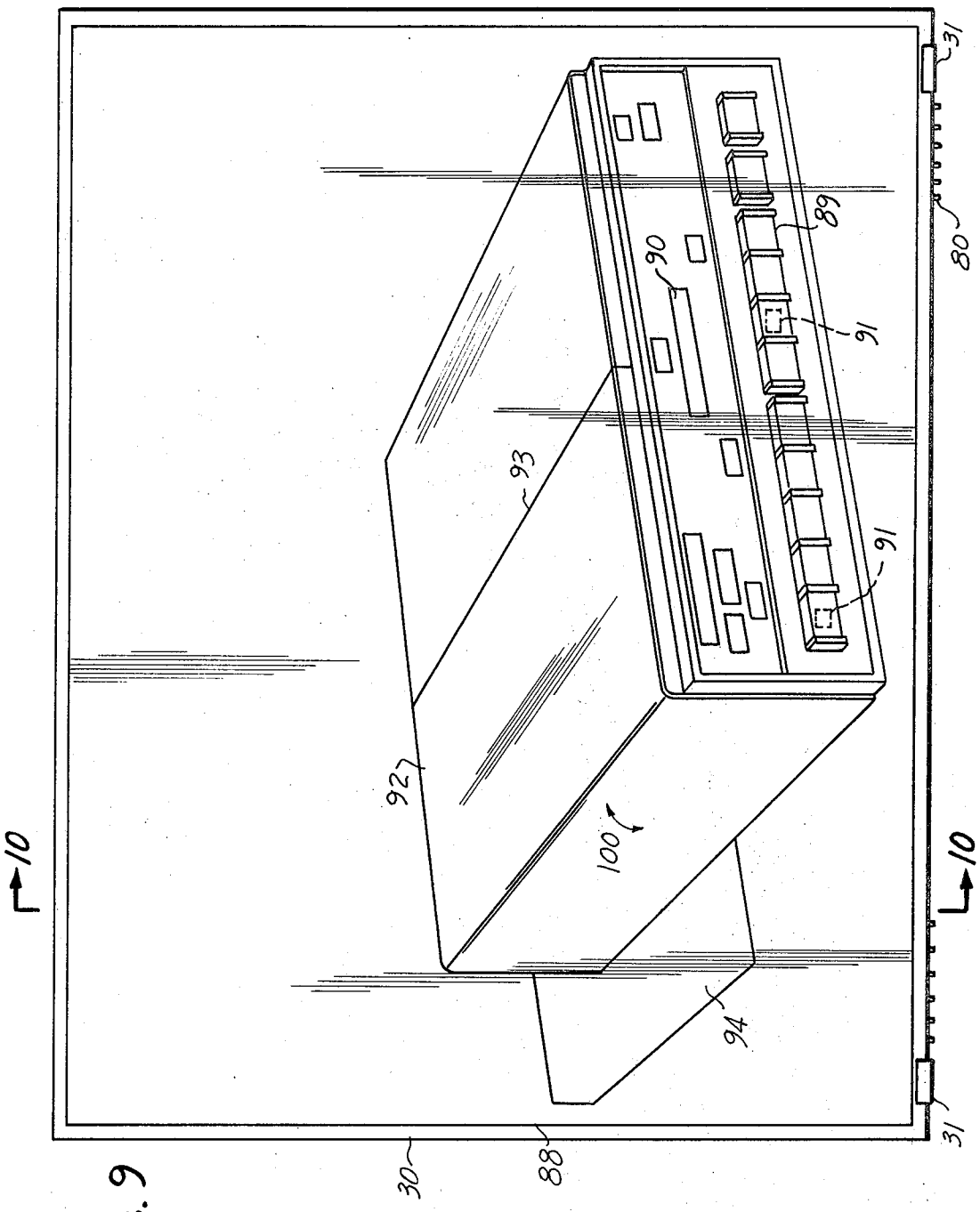

10
10
31
80
89
90
91
91
93
92
100
94
30
88
31

FIG. 9

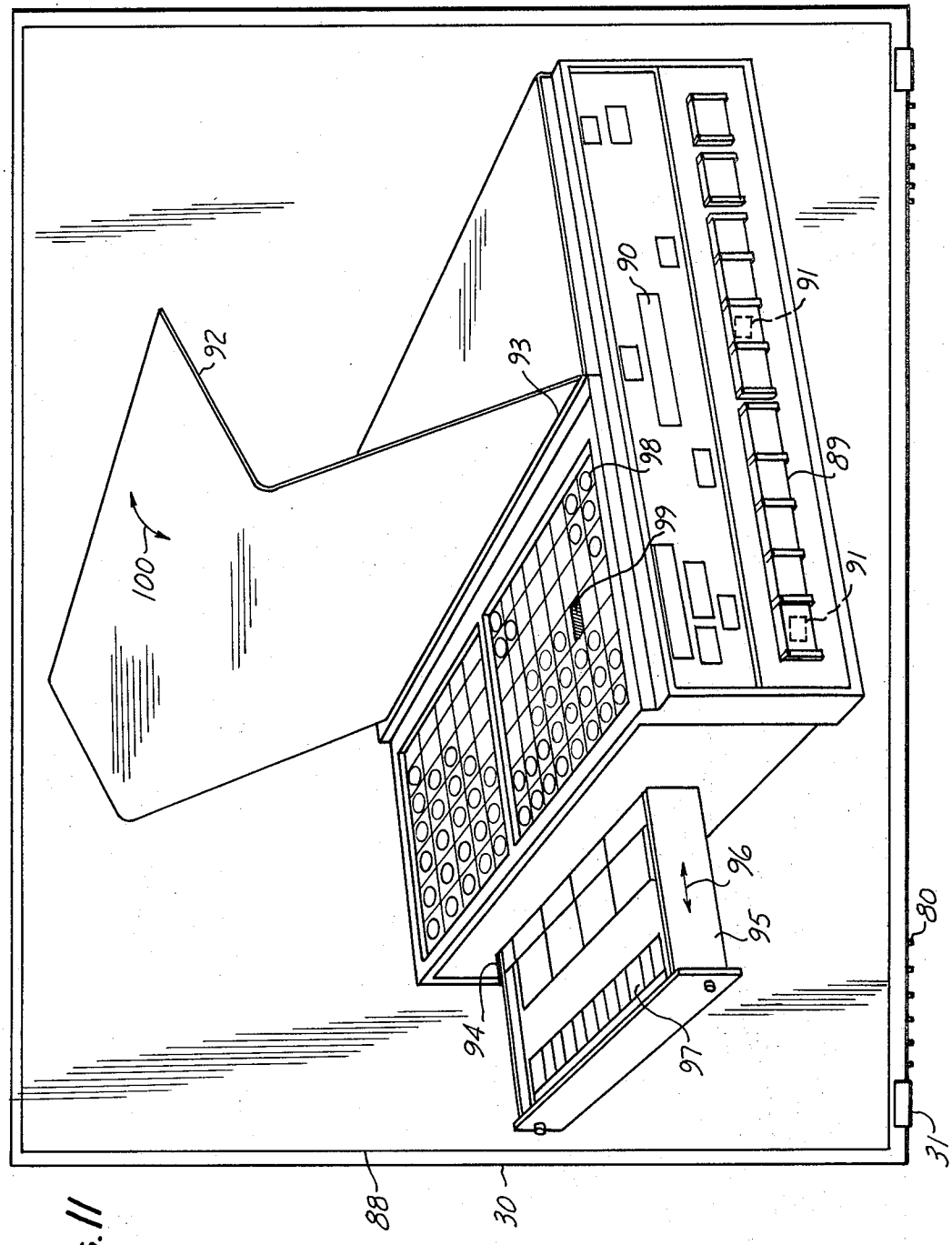


FIG. 11

APPARATUS FOR OPERATION OF INDICATORS AND CONTROLS SHOWN IN A PICTORIAL ILLUSTRATION

This invention relates to dynamic pictorial display apparatus and particularly to pictorial display apparatus for displaying illustrations of electrical devices, which illustrations have hidden electronics operable to cause the illustration to generate an optical illusion such that the electrical device in the illustration appears to operate.

Persons engaged in product research and development often have a need to express their ideas and concepts to others. Heretofore, such persons have utilized elaborate graphical illustrations, charts, technical documentation and reports, circuit diagrams and the like to present their ideas to others. When a new product is in existence and available for demonstration, innovators have often demonstrated the product and its operation. However, if the product is not in existence or available at the time of the presentation, or if a product's physical characteristics, complexity or functional properties render it unsuitable for demonstration, adequate communication of the ideas and concepts embodied in the product is not always a simple matter.

It is an object of the present invention to provide a dynamic pictorial display apparatus wherein illustrations or other graphical representations of a device may be dynamically displayed by optical illusions whereby the illustration operates to display characteristics similar to the device depicted in the illustration.

It is another object of the present invention to provide display apparatus wherein illustrations of electrical devices contain hidden electronics operable to create an appearance that the illustration operates in a predetermined manner.

It is another object of the present invention to provide dynamic display apparatus for dynamically displaying illustrations of devices utilizing principles of optical illustration to present an apparently three-dimensional, operational illustration of the device.

In accordance with the present invention, a housing is provided having support means for supporting photographs or other two-dimensional illustrations for three-dimensional objects. The illustrations comprise laminated cards containing electronic circuitry such as touch entry switches, electrical indicators and the like. In addition, the illustration may include movable slides, flaps and the like which may be manipulated to present an appearance of three-dimensional movement. Circuitry within the card is electrically connected through the support means on the housing to operate driving circuitry within the housing to operate the electronics in the card.

In the operation of the dynamic pictorial display apparatus in accordance with the present invention, a photograph or other illustration of a device may be supported on the housing and electrically connected to the circuitry within the housing. The connection between the card and the housing interconnects the switches and indicators with the circuitry within the housing in a predetermined manner so that upon depression of a region of the illustration, a hidden switch is operated which in turn controls the circuitry within the housing to operate a desired indicator in the illustration.

The present invention is particularly useful to manufacturers proposing to develop and produce devices for

others. With the present invention, an illustration of the device proposed to be built is provided with hidden indicators and switches at appropriate locations on the illustration so that the ideas and concepts of the proposed product may be explained to others. The operator of the display apparatus may operate hidden switches in the illustration to initiate operation of the indicators in accordance with a prearranged scenario to explain the operation of the device proposed to be manufactured.

The present invention is also useful as a teaching or training aid whereby an operator or student may manipulate illustrations of electrical apparatus to simulate the operational characteristics of the apparatus depicted in the illustration. Thus, students may gain operational and visual familiarity of the apparatus depicted, as well as familiarity with common maintenance procedures in response to simulated problems and faults.

One feature of the present invention resides in the provision of support apparatus on the housing to permit a plurality of illustration cards to be supported by the housing, and switch apparatus electrically connecting the forwardmost card to the circuitry so that only such card is operable.

Another feature of the present invention resides in the provision of a rear projected light supported by the housing so that a screen on the illustration may be illuminated.

The above and other features of this invention will be more fully understood from the following detailed description and the accompanying drawings, in which:

FIG. 1 is a perspective view of a housing for supporting illustrations in accordance with the presently preferred embodiment of the present invention;

FIG. 2 is a perspective view, partly in cutaway cross-section of a portion of the housing shown in FIG. 1;

FIG. 3 is a section view of the apparatus illustrated in FIGS. 1 and 2 taken along line 3—3 in FIG. 2, and showing connecting means for connecting illustrations to circuitry within the housing;

FIG. 4 is a section view as in FIG. 3 of a modification of the connecting means between the housing and the illustrations;

FIG. 5 is a block circuit diagram of circuitry associated with the housing shown in FIG. 1;

FIG. 6 is a plan view of a typical illustration card for use with the housing shown in FIG. 1;

FIG. 7 is a side view elevation of the illustration card shown in FIG. 6;

FIG. 8 is a plan view of a portion of the illustration card shown in FIG. 6;

FIG. 9 is a plan view of yet another illustration card for use with the apparatus shown in FIG. 1;

FIG. 10 is a section view taken at line 10-10 in FIG. 9; and

FIG. 11 is a plan view of the illustration card shown in FIG. 9 in an operable mode.

With reference to the drawings, particularly to FIGS. 1–3, there is shown a housing 20 having first and second case portions 21, 22 supported by feet 23. For example, housing 21 may be constructed similar to an attache case or the like, which may be opened and supported as illustrated in FIG. 1. Conveniently, a handle 24 may be provided for carrying housing 20. Screen 25 is mounted in case 22 and may, preferably, comprise a planar translucent screen for a light box. Member 26 protrudes forwardly of screen 25 at the lower portion

thereof to form a channel **27** below the forward lip of member **26.** As will be more fully understood hereinafter, channel **27** is inclined rearwardly so that illustrations supported within channel **27** are stacked against the inclined planar surface of screen **25.** Strip contacts **28** are disposed on the lower surface of channel **27** and movable contacts **29** protrude from the lower surface of channel **27** and behind the front lip of member **26.**

As will be made more fully understood hereinafter, cards **30** are laminated cards having a thickness of about ¼ inch and contain indicators and touch-activated switch devices for connection to driving circuitry within housing **20.** Each card **30** includes a plurality of contacts (not shown in FIGS. **1–3**), and a ground contact **31.** In the apparatus illustrated in FIG. **3,** switch device **29** comprises a contact having an inclined edge of **32.** Switch device **29** protrudes through a slot in the lower portion of slot **27** and is biased upwardly by means not shown. Switch **29** provides ground connection to the forwardmost card **30** supported on channel **27.** For example, if three cards are supported by channel **27** as illustrated in FIG. **3,** contact **29** assumes the position illustrated in FIG. **3** by virtue of contact **31** of the forwardmost card contacting surface **32** of switch **29.** With only two cards in channel **27,** contact **29** is biased upwardly to the position illustrated by dashed lines **29***a*, and with only one card in channel **27** contact **29** is biased upwardly to the position illustrated by dashed lines **29***b*.

FIG. **4** illustrates a modification of the ground contact **33** wherein the contact is pivotaly supported at point **34** and biased upwardly by means not shown to contact the forwardmost card **30** in channel **27.**

FIG. **5** is a block circuit diagram of the driving circuitry for driving indicators and switches on cards **30.** The driving circuit may, for example, by supported within case **22.** A plurality of latch circuits, or flip-flops **40** each have an input connected to an individual contact **28***a* in channel **27.** The outputs of latches **40** are connected through solid state switches **41** to contacts **28***b*, also disposed in channel **27.** As will be more fully understood hereinafter, contacts **28***a* are connected to normally open touch entry switches hidden in cards **30** behind a pictorial illustration so that upon momentary closure of a switch an associated latch is operated to impress a signal through a respective contact **28***b* to operate a lamp or other indicator in the card **30.** Gate circuits **42** may be provided with a plurality of inputs **28***a* to selectably control selected ones of latches **40.** Oscillator **43** may be provided to provide pulsating power instead of DC power output through a solid state switch **41** to a contact **28***b*. It is preferred that one of the latch circuits **40***a* control solid state switch **41***a* and driving circuit **44** to operate lamps **45** associated with the light box behind screen **25.** Also, a delay circuit **42***a* may be connected between two terminals **28***a*and **28***b*. A battery pack, generally illustrated at **46** is connected to ground **47** which, in turn, is connected to the contacts **29** of the movable switches in channel **27.** The battery pack is also connected to lamps **45,** is tapped for connection to output terminals **28***b*. As illustrated in FIG. **5,** one of the taps is connected to driving circuit **48** for operating lamps or other indicators associated in the card. Preferably, an AC-DC converter **49** is provided for recharging the batteries of battery pack **46.** Alternatively, direct AC operation of the circuitry may be utilized, particularly in fixed installation displays. Also, a ganged on-off switch **50** is provided to control power to the circuit.

The circuit illustrated in FIG. **5** is given as an example of a typical driving circuit and should not be construed as limiting the invention. The interconnections between switches and circuits, and between the circuits and indicators is accomplished by selectively connecting the switches and indicators in a particular card to respective contacts **28** for selective operation of various ones of latches **40.** The latches, amplifiers and oscillators may be operated in sequence, or in parallel and in any desired logic configuration, depending upon the intended operation of a card **30.** Further, several circuits may be interconnected by wiring terminals **28***a* and **28***b* together within card **30** for additional programming purposes, as will be more fully understood hereinafter.

FIGS. **6–8** show a two-dimensional, pictorial illustration **60** of a three-dimensional object in accordance with the presently preferred embodiment of the present invention. In FIG. **6,** a two-dimensional photograph or other pictorial illustration **60** is attached to card **30.** By way of example, illustration **60** may comprise a suitable photograph of a prototype electrical apparatus such as a keyboard display apparatus as illustrated in the illustration **60** appearing in FIG. **6.** As shown particularly in FIG. **7,** card **30** comprises a front card section **61** and a rear card section **62.** As will be more fully understood hereinafter, sections **61** and **62** are attached together by suitable attachment means such as magnets mounted to each of the card sections so as to form laminated card **30** comprising the sections **61** and **62.** Contact **31,** adapted to mate with switch contact **29** of the housing illustrated in FIGS. **1–3,** is mounted to the lower edge of section **61.** In addition, spring loaded contacts **80** are mounted to the lower edge of section **61** and protrude therefrom to make electrical connection with contact strips **28** in channel **27** of the housing.

As shown in FIG. **6,** illustration **60** depicts a keyboard display apparatus having a plurality of keys **63,** a screen **64,** and a plurality of indicators **65.** Located behind the illustration of certain of the keys is a plurality of touch actuated switches **66, 67, 68, 69** and **70.** An additional touch entry switch **71** is located behind a remote portion of the illustration for purposes to be hereinafter explained. Switches **67–71** may, for example, comprise membrane switches mounted to card section **61.** Such switches ordinarily comprise a pair of flexible conductive membranes in spaced relation which are capable of contacting by the application of a small pressure. Screen **64** is preferably a translucent screen mounted in the photograph **60.** A plurality of a alpha-numeric indicators **72** may be positioned behind screen **64.** In addition, screen **64** may also include suitable alpha-numeric characters **64** so that when a lamp behind screen **64** is operated, the characters will be displayed on the screen. A suitable aperture **73** is provided in one portion of the illustration to expose a lamp or other suitable indicator **74.**

FIG. **8** is a plan view of the rear face of card section **61** showing the electronics contained within card **30.** As shown in FIG. **8,** screen **64** is positioned over a suitable aperture **75** (FIG. **6**). Screen **64** preferably includes suitable indicia **64'** which may be viewed through the screen upon projection of light on the

screen. Ground contacts 31 are connected by lead 76 to each of the electrical devices mounted on the rear surface 77 of card section 61. Thus, one side of touch entry membrane switches 66, 67, 68, 69, 70 and 71, and of indicators 72 and 74 are electrically connected to ground contacts 31. The opposite side of each switch and indicator is connected to separate ones of contacts 80 by suitable leads mounted to surface 77. In addition, several of the contacts 80 may be connected together by jumper leads or the like as illustrated at 78. A plurality of permanent magnets 79 are mounted to surface 77 in spaced relation allowing the electrical connections to be mounted therebetween. For example, magnets 79 may comprise a suitable rubberized magnetic material bonded to card portion 61 at suitable locations, and card portion 62 may be provided with similar matching magnetic portions so as to fixedly attach card portions 61 and 62 by the magnetic attraction between the various magnets. Contacts 80, as illustrated in FIG. 8, are preferably spring loaded contacts so as to make positive contact with strip contacts 28 in channel 27.

In the use of the card illustrated in FIGS. 6–8, the card segments 61 and 62 are attached together by suitable fastening means, such as the magnets 79 attached to the card segments, to form the completed card 30. Card 30 is thereafter placed in channel 27 of housing 20 so that the illustration 60 may be viewed forward of the housing. Touch entry switches 66, 67, 68, 69, 70 and 71 are connected via individual connectors 80 and 28*a* to selected ones of latches 40, 40*a* of the circuit housed in housing 20. Likewise, the various indicators 72, 73 are connected by contacts 80 and 28*b* to the outputs of various amplifiers 41 of the circuit illustrated in FIG. 5. In the case of the card illustrated in FIGS. 6–8, screen 64 is exposed to screen 25 through suitable apertures 75 in the rear of card 30.

Assuming that the device illustrated in photograph 60 is a keyboard display unit for use with a computer, and assuming further that an operator is desirous of explaining the operation of the keyboard display unit to others, the operator closes switch 50 to energize the circuitry to activate the card. At the start of his scenario, the operator may touch the region of illustration 60 depicting the toggle switch in the center of the illustration thereby actuating switch 66 behind the illustration of the toggle switch. Switch 66 is connected via selected contacts 80 and 28*a* to a latch or flip-flop 40 (FIG. 5) in housing 22 to operate that latch to thereby operate the associated amplifier 41. Amplifier 41 provides an output signal via selected contacts 28*b* and 80 to operate lamp 74. The illumination of lamp 74 thus depicts the illusion that the device depicted in the photograph is ready to operate. Thereafter, the operator may selectively operate selected ones of switches 67–69 behind illustrations of keys 63 to actuate respective latches and amplifier to operate alpha-numeric indicators 72 so that an alpha-numeric message is illuminated onto screen 64. For example, by depressing the region of illustration 60 associated with the key "T", a "T" is illuminated onto screen 64 by indicators 72. Thereafter, the operator may operate switch 70 located behind a depiction of another key, to operate latch 40*a* in FIG. 5 to operate lamps 45 of the light box behind screen 25 in housing 22. The illumination of screen 25 is projected through screen 64 to permit viewing of indicia 64' to complete a predetermined message on the screen.

Assume that during the scenario the operator desires to explain various alternatives of construction of the proposed device. Assuming further that one such alternative is to provide a flashing indication instead of a steady state indication which the operator would explain to the audience would conserve power, the operator may show this alternative by operating hidden switch 71 to initiate operation of oscillator 43 (FIG. 5). Oscillator 43 is connected through selected contacts 28*b* and 80, jumper wire 78, and selected contacts 80 and 28*a* to the input of latch 40*a*, thereby operating lamps 45 in a flashing mode. Obviously, other indicators may be flashed and interconnected in any desirable manner. The electronics associated with a particular card 30 may be turned off merely be operating an appropriate hidden switch and/or by removing the card from channel 27 to break the connection to the circuit shown in FIG. 5.

FIGS. 9–11 illustrate yet another embodiment of a card 30 for use with the apparatus illustrated in FIGS. 1–4. Card 30 includes card sections 85 and 86, held together by means of magnets 79. Cavity 87 is formed in section 86 between the card portions to contain the electronics for operating the indicators and switches associated with two-dimensional illustration 88. Illustration 88 depicts a three-dimensional view of a computer console having a plurality of push buttons 89 and a plurality of indicators 90. Light emitting diodes or other suitable indicators are provided in suitable slots in illustration 88 for each indicator 90 shown therein. Also, touch entry switches 91 are positioned behind selected ones of push buttons 89 depicted in the illustration. Switches 91 and indicators 90 are connected to spring contacts 80 and to ground contacts 31 as heretofore described for connection to the circuitry shown in FIG. 5. Flap 92 is hingedly attached at 93 to illustration 88 and depicts a cover for the console. A suitable slot 94 is provided in illustration 88 so that slide 95 (FIG. 11) may be moved in the direction of arrow 96 to either of two positions. Slide 95 depicts a drawer containing electronics 97. Illustration 88 includes a representation of electronics 98 beneath flap 92 so that when flap 92 is moved to the position shown in FIG. 11, electronics 98 may be viewed on illustration 88. The electronic circuits 98 depicted in illustration 88 beneath flap 92, may for example, be illustrations of plug-in circuit modules, and slide 99 depicting the absence of a circuit module may be provided to selectively cover a depiction of one such module to present the illusion of removal of that module.

As an example of the use of the card illustrated in FIGS. 9–11, the card is positioned in channel 27 of the housing 20 so that contacts 80 make electrical connection with contacts 28 and contacts 31 make connection with contacts 29. The operator may operate selected indicators in slots 90 by actuating selected ones of switches 91 positioned behind keys 89 of the illustration 88. Assuming that the operator desires to explain the servicing of the unit depicted in illustration 88, he may revolve flap 92 about hinge 93 in the direction of arrow 100 from the position illustrated in FIG. 9 wherein flap 92 lies flat on illustration 88 in one position to the position illustrated in FIG. 11 wherein flap 92 lies flat on illustration 88 in a second position. Slide 95 may then be pulled to the left as illustrated in FIG. 11 to expose the illustration of the electronic drawer 97 shown in FIG. 11. Assuming the operator desires to

show the manner of operation of the plug-in modules **98** illustrated in FIG. **11**, he may, by hiding an actual plug-in unit in his hand, maneuver slide **99** over the depiction of the respective plug-in module to block the depiction from view, and thereafter show the actual plug-in module previously hidden in his hand to those viewing the scenario. Thus, the audience viewing the scenario will see a depiction of the unit in operation as it would appear if the unit had actually been present.

The present invention thus provides apparatus for presenting a dynamic pictorial display of apparatus, and particularly electronic apparatus, utilizing optical illusions to explain the mode of operation of the device shown in the photograph. Electronic devices, including indicators and membrane switches are utilized in connection with a standard logic circuit to aid in the illusion. If desired, rear projection apparatus may be provided within housing **22** for projecting still or motion pictures on the screen of a card, thereby providing a predetermined sequence of a plurality of display images.

One feature of the invention resides in the fact that each card is programmed for operation in accordance with the wiring of the card, and the logic is established by selection wiring to standard contact configuration so that standard electronics within the housing is utilized for each card. Indicators on the card can be controlled to delayed operation, flashing conditions and dim and bright operations in addition to on/off operation, as determined by the logic circuitry and switching arrangements.

Another feature of the present invention resides in the fact that several cards may be placed on a single support and only the forwardmost card is electrically connected to the circuitry in the housing for operation. Preferably, magnets (not shown) are provided at the lower edge of each card for magnetic coupling to magnets in channel **27** of the housing to hold the cards **30** in proper electrical registration during presentation. A card may be removed merely by rotating the card forward to break the magnetic attraction between the magnet in the card and the magnet in the housing to thereby remove the card and electrically connect the next card behind the first card to the electronics in the housing.

Another feature of the present invention resides in the provision of movable portions on the illustration, such as flaps and slides and the like, to convey three-dimensional movement on a two-dimensional illustration. Obviously, the movable portions can also be associated with switches in the card to control a predetermined electrical response. Also, audible indicators, loudspeakers and the like, may be incorporated to present a predetermined, or recorded, audio message or indication.

The present invention thus provides apparatus enabling an operator to present a dynamic illustration of the operation of electronic apparatus, even though such apparatus is not in existence and is only presented pictorially. The apparatus provides a dynamic display which, through the use of optical illusions, slides, flaps, light boxes, and rear projection pictures, present an impression that the device depicted in the illustration is in operation. With a dynamic display device in accordance with the present invention, an operator can explain new products to prospective manufacturers and purchasers in a manner not heretofore capable through the use of graphical presentations, charts and the like.

This invention is not to be limited by the embodiments shown in the drawings and described in the description, which are given by way of example and not of limitation, but only in accordance with the scope of the appended claims.

What is claimed is:

1. Display apparatus for displaying a pictorial illustration and operating at least one illustration card containing electronic switches and indicators operable to illustrate the operation of a device depicted by said pictorial illustration, said illustration card further including at least a first connector means electrically connected to said electronic switches and indicators, said apparatus comprising: a housing; circuit means supported by said housing; support means on said housing for supporting at least one illustration card; and a second connector means on said housing electrically connected to said circuit means, said first and second connector means being so disposed and arranged as to establish electrical connection to said illustration card resting on said support means, said circuit means being operable in response to actuation of switches in said illustration card supported by said support means to operate predetermined indicators on said pictorial illustration.

2. Apparatus according to claim **1** wherein said housing includes an inclined planar member and said support means includes an inclined channel member disposed forwardly of the lower-most portion of said planar member, said illustration card comprising a substantially planar illustration card removably positionable on said inclined channel member for support against said inclined planar member.

3. Apparatus according to claim **2** wherein said second connector means is supported by said inclined channel member and is disposed in the channel.

4. Apparatus according to claim **3** wherein said channel member is sized to receive a plurality of illustration cards in stacked relation supported against said inclined planar member, said second connector means including means operable in response to the positioning of illustration cards on said channel member to establish electrical connection to the first connectors of only the forward-most illustration card.

5. Apparatus according to claim **4** wherein said inclined planar member comprises a translucent screen, and said circuit means includes rear projection light means supported by said housing behind said screen operable in response to the actuation of predetermined switches on at least one said illustration card.

6. Apparatus according to claim **4** wherein said second connector means comprises a plurality of strip contacts and movable contact means supported in said inclined channel member, said strip contacts being electrically connected to selected circuitry of said circuit means and said movable contact means being connected to a common connection for the circuitry of said circuit means, said movable contact means being operable in response to the presence of illustration cards on said channel member to contact only respective connectors of the forward-most illustration card.

7. Apparatus according to claim **6** wherein said movable contact means includes an inclined edge for contacting respective connectors of the forward-most illustration card supported on said channel member.

8. Apparatus according to claim 7 wherein said movable contact means is pivotally supported by said housing.

9. Apparatus according to claim 2 further wherein said inclined planar member comprises a translucent screen, and said circuit means includes lamp means supported by said housing behind said screen operable in response to the actuation of switches on said illustration card.

10. In a display apparatus for displaying a pictorial illustration and including a housing containing circuit means for operating at least one illustration card, the combination thereof with the display apparatus of an illustration card comprising first and second card portions; attachment means for attaching said card portions together, said card portions together defining said illustration card having opposite substantially planar surfaces and a cavity between the card portions; a pictorial illustration fixedly attached to the outer planar surface of said first card portion; indicator means and touch actuable switch means fixedly attached to said first card portion within said cavity; at least one connector means supported by said first card portion and exposed to an edge of said illustration card, said connector means being electrically connected to said indicator means and said switch means, said pictorial illustration being positioned over said switch means, and said indicator means being actuable to be viewed when said pictorial illustration is viewed, whereby upon connecting said connector means to the circuit means of the display apparatus, said switch means may be actuated by touching said pictorial illustration at a region juxtapositioned said switch means to selectively actuate said indicator means.

11. Apparatus according to claim 10 wherein said pictorial illustration depicts an electronic device having a pictorial presentation of switch operators, said indicator means being viewable through a depiction of display apparatus on said pictorial illustration, said switch means being juxtapositioned behind said pictorial representation of switch operators, whereby upon touching said pictorial representations of switch operators said switch means is actuated to operate said indicator means.

12. Apparatus according to claim 11 wherein said indicator means comprises light emitting alpha-numeric indicators.

13. Apparatus according to claim 10 wherein said pictorial illustration depicts an electronic device having display apparatus, said indicator means including translucent screen means having predetermined indicia disposed thereon capable of projecting an image of characters when said screen means is illuminated, said switch means being operable to actuate rear projection light means behind said screen means in a housing supporting said card means.

14. Apparatus according to claim 10 wherein connector means comprises a first and a second connector means, said plurality of first connector means comprising a plurality of biased connectors adapted to contact strip contacts on the housing supporting said card means and said second connector means comprising a strip connector adapted to contact a movable contact supported by said housing.

15. Apparatus according to claim 10 further including movable pictorial illustrations supported on said first card portion for movement with respect to said fixedly attached pictorial illustration.

16. In combination: a dynamically operable pictorial display card having a pictorial illustration fixedly attached to a planar surface of said card; indicator means and touch actuable switch means fixedly attached to said card; first connector means electrically connected to said indicator means and said switch means and terminating at an edge portion of said card means; said pictorial illustration being positioned over said switch means, and said indicator means being actuable to be viewed in front of said pictorial illustration; a housing; a circuit means supported by said housing; a support means on said housing; said display card resting on said support means on said housing; second connector means on said housing electrically connected to said circuit means, said second connector means being so disposed and arranged as to establish electrical connection to respective first connector means, said circuit means being operable in response to actuation of said switch means to operate predetermined indicator means on said card, whereby said switch means may be actuated by touching said pictorial illustration at a region juxtapositioned said switch means to selectively actuate said indicator means.

17. Apparatus according to claim 16 wherein said housing includes an inclined planar member and said support means includes an inclined channel member disposed forwardly of the lowermost portion of said planar member, said card being removably positionable on said inclined channel member for support against said inclined planar member.

18. Apparatus according to claim 17 wherein a plurality of said cards are supported by said channel member in stacked relation against said inclined planar member, said second connector means including means for establishing electrical connection to first connector means of only the forwardmost card.

19. Apparatus according to claim 16 wherein said inclined planar member comprises a translucent screen, and said circuit means includes rear projection light means supported by said housing behind said screen operable in response to the actuation of selected switch means on said card.

20. Apparatus according to claim 16 wherein said second connector means comprises a plurality of strip contacts and movable contact means supported in said inclined channel member, said strip contacts being electrically connected to selected circuitry of said circuit means and said movable contact means being connected to a common connection for the circuitry of said circuit means.

21. Apparatus according to claim 20 wherein said first connector means comprises a plurality of biased contacts each arranged to contact a respective one of said plurality of strip contacts and a strip connector arranged to contact said movable contact means, said plurality of biased contacts being electrically connected to selected ones of said switch means and indicator means and said strip connector being electrically connected to all of said switch means and indicator means.

22. Apparatus according to claim 16 wherein said pictorial illustration depicts an electronic device having a pictorial representation of switch operators, said indicator means being viewable through a depiction of display apparatus on said pictorial illustration, said switch

means being juxtapositioned behind said pictorial representation of switch operators, whereby upon touching said pictorial representations of switch operators said switch means is actuated to operate said indicator means.

23. Apparatus according to claim **16** wherein said pictorial illustration depicts an electronic device having display apparatus, said indicator means including translucent screen means having predetermined indicia disposed thereon capable of projecting an image of characters when said screen means is illuminated, lamp means supported by said housing and electrically connected to said circuit means, said switch means being operable to actuate said lamp means to illuminate said screen means.

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