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(54) **MULTICONNECTOR FOR GAME MACHINE**

VIELFACHVERBINDER FÜR SPIELAPPARAT

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- **PATENT ABSTRACTS OF JAPAN vol. 014 no. 456 (C-0765) ,2 October 1990 & JP-A-02 182282 (KYUSHU HITACHI MAXELL LTD) 16 July 1990,**
- **PATENT ABSTRACTS OF JAPAN vol. 014 no. 456 (C-0765) ,2 October 1990 & JP-A-02 182281 (KYUSHU HITACHI MAXELL LTD) 16 July 1990,**
- **PATENT ABSTRACTS OF JAPAN vol. 018 no. 262 (C-1201) ,19 May 1994 & JP-A-06 039146 (SEKISUI CHEM CO LTD) 15 February 1994,**

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EP 0 654 289 B1

DescriptionTECHNICAL FIELD

[0001] The present invention relates to a multi-connection device for use in a game apparatus for transmitting data from a plurality of input means to a main body of the game apparatus.

BACKGROUND ART

[0002] Years have passed since home video game devices appeared, and recently a wide variety of amusing games has been developed. The video games are very popular as an entertainment. Such home video game apparatus usually has two input means directly connected to its main body.

[0003] Consequently in the case of game software played concurrently by three or more game players, the players operate two input means in turn in accordance with instructions of the game software. But such a manner of use is applicable only to games of types such as simulation games, etc. This has been a problem.

[0004] For game software, such as action games, shooting games, etc., which require players to operate input means in real time, adaptors with a plurality of connection terminals to be connected to the input means have been developed. The input means are connected to the respective plural connection terminals, and the adaptor is connected to a connection terminal for the input means of a game apparatus body or a game console. The use of the adaptor allows players to simultaneously operate a plurality of input means to enhance a game.

[0005] However in this conventional adaptor, control of the plural input means connected to the adaptor, such as monitoring of the connection states of the input means, reading of data from the input means, etc., is conducted by the game console. Consequently the control of the input means and the processing of input data by the game console are complicated, and are not applicable to games which require high-speed data processing.

[0006] An object of the present invention is to provide a multi-connection device which can supply data from a plurality of input means to a body of a game apparatus with the game console less loaded with data processing.

[0007] Other ways of connecting a plurality of input means to a game console are known. JP-A-2182281 discloses a control data transmitting adapter for transmitting data in a wireless state forming a multi-connection device as described in the preamble of claim 1. EP-A-0485227 discloses a communication adaptor for transmitting and receiving data between a plurality of game sets.

DISCLOSURE OF INVENTION

[0008] The invention provides a multi-connection device for use in a game apparatus comprising: a plurality of input connectors for connection to respective input means; an output connector for connection to a body of the game apparatus for outputting data to the game apparatus body; and characterized by a control unit for sequentially reading data from input means connected to the plural input connectors and outputting the read data to the game apparatus body via the output connector; wherein the control unit includes a storage unit for storing the sequentially read data from the plural input means, and outputs via the output connector, in response to an instruction of the game apparatus, the sequentially read data from the plural input means stored by the storage unit.

[0009] It is preferable that the multi-connection device further comprises a selection means having an individual selection state that is selective of one of the plural input connectors, wherein, when the individual selection state is selected, the control unit connects the input connector selected by the selection means to the output connector.

[0010] It is also preferable that the selection means has a multi-selection state which is selective of the plurality of input connections and when the multi-selection state is selected, the control unit outputs as a group at the output connector the data of the plural input means stored by the storage unit.

[0011] Thus, according to the present invention, the multi-connection device for use in a game apparatus sequentially reads data from a plurality of input means, and outputs the read data to the body of the game apparatus in a group, whereby the game apparatus is less loaded and can be used for complicated and amusing games which require high-speed data processing.

BRIEF DESCRIPTION OF DRAWINGS

[0012] FIG. 1 is a perspective view showing the multi-connection device for use in a game apparatus according to one embodiment of the present invention.

[0013] FIG. 2 is a block diagram of the multi-connection device for use in a game apparatus according to FIG. 1.

[0014] FIGs. 3A to 3C are examples of input means usable in the multi-connection device for use in a game device according to the embodiment of FIG. 1.

[0015] FIG. 4 is a block diagram of a major part of the multi-connection device according to the embodiment of FIG. 1.

[0016] FIG. 5 is a circuit diagram of the major part of the multi-connection device according to the embodiment of FIG. 4.

[0017] FIG. 6 is an explanatory view of the operation of the multi-connection device according to the present invention.

[0018] FIG. 7 is a flow chart explaining the operation of the multi-connection device according to the present invention.

[0019] FIG. 8 is a further explanatory view of the operation of the multi-connection device according to the present invention.

[0020] FIGs. 9A and 9B are further explanatory views of the operation of the multi-connection device according to the present invention.

[0021] FIG. 10 is a timing chart explaining the operation of the multi-connection device according to the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

[0022] As shown in FIGs. 1 and 2, the multi-connection device 30 according to one embodiment of the present invention is provided between a game console 10 and input means 20. The game console 10 has two input connectors 12a, 12b to which two, at most, input means, such as a joy pad, joy stick, mouse, etc., can be connected. The multi-connection device 30 is connected to either of the input connectors 12a, 12b of the game console 10.

[0023] In FIG. 1, the input means 20 is a joy pad connected to one of the input connectors 12a of the game console 10 and the multi-connection device 30 is connected to the other input connector 12b.

[0024] The multi-connection device 30 has four input connectors 32a, 32b, 32c, 32d to which four, at most, input means, such as a joy pad, joy stick, mouse, etc., can be connected. In FIG. 1, the input means 20 is a joy pad connected to the leftmost input connector 32a of the multi-connection device 30.

[0025] A sliding mode switch 34 is provided on the upper surface of the multi-connection device 30. The mode switch 34 is for selecting an operational mode of the multi-connection device 30 and is switched between: a mode A for enabling only input means connected to the input connector 32a, a mode B for enabling only input means connected to the input connector 32b, a mode C for enabling only input means connected to the input connector 32c, a mode D for enabling only input means connected to the input connector 32d, and a mode MULTI for enabling all the input means connected to the four input connectors 32a, 32b, 32c, 32d.

[0026] As shown in FIG. 2, a one-chip microcomputer 36 is incorporated in the multi-connection device according to this embodiment for controlling operations of the multi-connection device 30. The one-chip microcomputer 36 comprises a CPU 36a, a ROM 36b and a RAM 36c, and is connected to a bus line 38.

[0027] This embodiment uses the one-chip microcomputer 36 for controlling operations of the multi-connection device 30, but a logic circuit may be used for the control which does the same operations as the one-chip microcomputer 36.

[0028] FIG. 3 shows examples of input means 20 us-

able on the multi-connection device according to this embodiment.

[0029] FIG. 3A shows a common three-button joy pad 22. The joy pad 22 has a direction button 22a on the left side, a start button 22b and three instruction buttons 22c, 22d, 22e on the right side.

[0030] FIG. 3B shows a six-button joy pad 24 which is an improvement over the general three-button joy pad 22 in operability. A direction button 24a is provided on the left side, a start button 24b is provided at the center, and six instruction buttons 24c, 24d, 24e, 24f, 24g, 24h are provided on the right side.

[0031] FIG. 3C shows a mouse 26. The mouse 26 has a rotary ball (not shown) on the underside and is moved over a desk, whereby the ball is rotated to input data of the direction and distance of motion. Two switch buttons 26a, 26b are provided on an upper part thereof and are pushed to input various instructions.

[0032] The structure of the multi-connection device 30 according to this embodiment will now be explained in detail with reference to FIG. 4. For simplifying the explanation, FIG. 4 shows only two input connectors 32a, 32b.

[0033] The mode switch 34 includes a terminal JS1 for the mode A of enabling only input means connected to the input connector 32a, a terminal JS2 for the mode B for enabling only input means connected to the input connector 32b, and a terminal MULTI for the mode MULTI for enabling all the input means connected to the input connectors 32a, 32b.

[0034] The mode switch 34 is connected to the bus line 38 through a buffer 40. The state of the mode switch 34 is outputted to the bus line 38 through the buffer 40.

[0035] An input selector 42 selects either of the two input connectors 32a, 32b and outputs data received from the selected input means 20. The input selector 42 includes input terminals JS1, JS2 respectively connected to the input connectors 32a, 32b, an output terminal OUT for outputting the selected data, and a control terminal SL for inputting instruction data. A latch 44 is connected to the control terminal SL of the input selector 42, and the latch 44 is connected to the bus line 38.

[0036] When instruction data is supplied to the latch 44 through the bus line 38, the input selector 42 selects one of the input terminals JS1, JS2 and, based on the latched instruction data by the latch 44, connects the same to the output terminal OUT.

[0037] When the mode A is selected by the mode switch 34, instruction data for connecting the input terminal JS1 to the output terminal OUT is latched by the latch 44, and the input terminal JS1 and the output terminal OUT are placed in contact with each other.

[0038] When the mode B is selected by the mode switch 34, instruction data for connecting the input terminal JS2 to the output terminal OUT is latched by the latch 44, and the input terminal JS2 and the output terminal OUT are placed in contact with each other.

[0039] When the mode MULTI is selected by the mode

switch 34, the instruction data for connecting the input terminal JS1 to the output terminal OUT, and that for connecting the input terminal JS2 to the output terminal OUT are suitably latched by the latch 44, and the input terminals JS1, JS2 are connected to the output terminal OUT dynamically alternately.

[0040] Data outputted from the output terminal OUT of the input selector 42 is supplied to the bus line 38 through the buffer 46 and to an output selector 48.

[0041] The output selector 48 selectively outputs either the data outputted from the output terminal OUT of the input selector 42 or data latched by a latch 50. The output selector 48 includes an input terminal THRU connected to the output terminal OUT of the input selector 42, an input terminal MULTI connected to the latch 50, an output terminal MD connected to the game console 10, and a control terminal SL for receiving instruction data. A latch 52 is connected to the control terminal SL of the output selector 48 and to the bus line 38.

[0042] The input selector 42, the latch 44, the buffer 46, the output selector 48, the latch 50 and the latch 52 constitute a control unit for controlling the multi-connection device 30.

[0043] When instruction data is latched by the latch 52 through the bus line 38, based on the latched instruction data from the latch 52 the output selector 48 selects one of the input terminals THRU, MULTI and connects the same to the output terminal MD.

[0044] When either of the modes A, B is selected by the mode switch 34, instruction data for connecting the input terminal THRU to the output terminal MD of the output selector 48 is latched by the latch 52, and the input terminal THRU and the output terminal MD are placed in contact with each other.

[0045] When the mode MULTI is selected by the mode switch 34, instruction data for connecting the input terminal MULTI to the output terminal OUT is latched by the latch 52, and the input terminal MULTI and the output terminal MD are placed in contact with each other.

[0046] The input selector 42 can switch the input terminals JS1, JS2 dynamically by the latch 44. Input data from the input means 20 connected to the input connectors 32a, 32b is sequentially outputted to the bus line 38 through the buffer 46, and stored by the RAM 36c of the one-chip microcomputer 36. The input data stored in the RAM 36c is sequentially latched by the latch 50 and is supplied through the output selector 48 to the game console 10 from the output terminal MD.

[0047] FIG. 5 is an example of a circuit diagram for the multi-connection device 30 of FIG. 4. The correspondence between the two will be explained.

[0048] The input terminals JS1, JS2 of the input selector 42 and the input means are connected to each other by nine signal lines. Two of the nine signal lines are used for a power source Vcc and GND, and the remaining seven signal lines are used for input and output of data. One of the seven signal lines is always for output of signals. One of the other six signal lines is for input

or output of signals. The remaining five signal lines are for input of signals.

[0049] Here the output signal line means a signal line for outputting a signal from the input terminals JS1, JS2 of the input selector 42 to the input means 20. An input signal line means a signal line for inputting a signal from the input means 20 to the input terminals JS1, JS2 of the input selector 42.

[0050] The input selector 42 comprises decoders 60, 61, selectors 62, 63 (five), tristate buffers 64, 65, and a latch 66. The output selector 48 comprises selectors 67, 68, a tristate buffer 69, selectors 70, 71 (five), and the latch 66. FIG. 4 does not show the latch 66 which is an internal component of the input selector 42 and the output selector 48.

[0051] Comparing FIG. 4 with FIG. 5, the buffer 40 corresponds to the buffer 72; the latch 44 to the latch 75; the buffer 46 to the buffer 73; the latch 50 to the latch 74; and the latch 52 to the latch 75. The latch 75 includes the latch 44 and the latch 52.

[0052] The operation of the multi-connection device 30 according to this embodiment will now be explained briefly with reference to FIG. 6.

[0053] In a video game apparatus, control is conducted every scanning period (1/60 seconds) for one field which is a screen formed by one vertical scanning of TV set. A period of one field includes a display period in which images are displayed, and a vertical flyback period in which no images are displayed. During the vertical flyback period, data from a plurality of input means is supplied from the multi-connection device 30 to the game console 10.

[0054] When a vertical flyback period starts, the game console 10 first reads data from the input means 20 directly connected to the input connector 12a, and then reads input data of a plurality of input means 20 from the multi-connection device 30. Then, based on the read input data, the game console 10 conducts display processing, such as movements of players' characters, movements of opponents' characters, etc. During a display period, the game console 10 displays an image prepared in the vertical flyback period.

[0055] When a vertical flyback period starts, the multi-connection device 30 supplies, in response to an instruction of the game console 10, the prepared input data from the plural input means to the game console 10. Then the multi-connection device 30 reads the operational mode from the mode switch 34.

[0056] When the operational mode is one of modes A - D for enabling only individual input connectors 32a - 32d, the input selector 42 connects one of the input terminals JS1 - JS4 for the selected modes to the output terminal OUT, and the output selector 48 connects the input terminal THRU to the output terminal MD.

[0057] When the operational mode is the mode MULTI for enabling all the input means, as shown in FIG. 6, input data is sequentially read from the input means 20 connected to the input connectors 32a, 32b, 32c, 32d to

prepare input data to be supplied to the game console 10. The thus-prepared input data is supplied to the game console 10 during the next vertical flyback period.

[0058] The operation of the multi-connection device 30 will now be explained in detail with reference to FIGs. 7 to 10.

[0059] In the through modes A to D, the multi-connection device 30 functions as a mere switch. That is, one of the input terminals JS1 - JS4 for the selected mode is connected to the terminal OUT of the input selector 42 and the output selector 48 connects the input terminal THRU to the output terminal MD, so that the input means 20 connected to the enabled input terminal is directly connected to the input terminal 12b of the game console 10. The game console 10 reads input data from the input means 20 connected to its own input connector 12a and then reads input data from the input means 20 connected to the multi-connection device 30.

[0060] In the MULTI mode, when supply of input data to the game console 10 is over, input data to be supplied to the game console 10 is prepared for outputting during the next vertical flyback period.

[0061] After the state of the mode switch 34 is read, connection states of the input connector terminals 32a - 32d and input data from the plural input means 20 are read. The reading operation will be explained with reference to the flow chart of FIG. 7.

[0062] First, it is judged whether or not input means of any kind is connected to the input connector 32a (step S10).

[0063] When any input means is connected thereto, it is judged whether the input means is a joy pad (step S11). When the input means is a joy pad, the type of joy pad and the switch states of the joy pad are read by the seven signal lines of the input terminal JS1 (steps S12, S13 and S14).

[0064] The joy pad may be a three-button joy pad 22 (FIG. 3A) or a six-button joy pad 24 (FIG. 3B). Thus it is judged first in step S12 whether the joy pad is a six-button joy pad.

[0065] When the joy pad is a three-button joy pad 22, it is necessary to read the states of eight switches. As shown in FIG. 8, an ID code [0000] for the three-button joy pad is generated, a level of the output signal line is changed to read through the input signal line data of the three-button joy pad 22, and the data is stored (step S14).

[0066] When the joy pad is a six-button joy pad 24, it is necessary to read 12 bit input data. As shown in FIG. 8, an ID code [0001] for the six-button joy pad is generated, the level of the output signal line is changed to read through the input signal line data of the six-button joy pad 24, and the data is stored (step S13).

[0067] When the input means connected to the input connector 32a is not a joy pad, it is judged whether or not the input means is a mouse (step S15). When the input means is a mouse, two of the seven signal lines of the input terminal JS1 are used as output signal lines,

and the remaining five signal lines are used as input signal lines to read the kind of input means, the position of the mouse and states of the switches (step S16). As shown in FIG. 8, when the input means is a mouse an ID code [0010] for the mouse is generated, and a level of the output signal line is changed to read and store a position of the mouse and data of the switches.

[0068] When it is judged in step S10 that no input means is connected, or it is judged in step S15 that the input means is neither a joy pad nor a mouse, non-connected processing is conducted (step S17). An ID code [1111] for non-connection is generated, and data from the signal lines are not stored.

[0069] When reading from the input connector 32a is over, it is judged whether the reading from the other input connectors 32b - 32d is over (step S18). The processing of steps S10 to S17 is repeated until the reading from the input connectors 32a - 32d is over.

[0070] The read data is sequenced as shown in FIG. 8 into a set of input data. IDs indicative of the kinds of input means connected to the four input connectors 32a - 32d are positioned at the head of the sequence. The IDs are followed by the input data from the respective input means. This sequence enables the game console 10 first to read the IDs indicative of the kinds of input means and to know, without failure, the total bit number of the input data because bit numbers of the input data from the respective input means are determined by the IDs. Therefore only the necessary bit number can be supplied between the game console 10 and the multi-connection device 30.

[0071] Thus preparation of the input data to be supplied is completed.

[0072] When a vertical flyback period starts, and reading of the data from the input means 20 connected to the input connector 12a of the game console 10 is over, input data is supplied to the game console 10 from the multi-connection device 30. This supply operation will be detailed with reference to FIGs. 9A and 9B.

[0073] The multi-connection device 30 and the game console 10 are connected to each other by nine signal lines. Two of the nine signal lines are used for a power source Vcc and GND and the remaining seven signal lines are used for input and output of data. Two of the seven signal lines are used as output signal lines and the other five signal lines are used as input signal lines. As shown in FIG. 9A, the two output signal lines are a select signal line SEL and a strobe signal line STRB. The five input signal lines are an acknowledge signal line ACK and four data signal lines DATA. These signal lines are controlled to supply the input data of FIG. 8 from the multi-connection device 30 to the game console 10.

[0074] Here an output signal line means a signal line for outputting signals from the game console 10 to the multi-connection device 30. An input signal-line means a signal line for inputting signals from the multi-connection device 30 to the game console 10.

[0075] The game console 10 places the select signal line SEL at a low level when the game console 10 becomes ready to receive data. Then the multi-connection device 30 is in a mode for outputting data and monitors changes of the strobe signal line STRB of the game console 10.

[0076] When the strobe signal line STRB changes from a high level to a low level, the multi-connection device 30 outputs the first data to the data signal line DATA, changing the acknowledge signal line ACK from the high level to the low level.

[0077] The game console 10 detects the change of the acknowledge signal line ACK and reads the data supplied to the data signal line DATA. When the reading of the data is over, the game console 10 changes the strobe signal line STRB from the low level to the high level.

[0078] When the strobe signal line STRB changes from the low level to the high level, the multi-connection device 30 outputs next data to the data signal line DATA, changing the acknowledge signal line ACK from the low level to the high level.

[0079] The game console 10 detects the change of the acknowledge signal line ACK and reads the data outputted to the data signal line DATA. When the reading of the data is over, the game console 10 changes the level of the strobe signal line STRB.

[0080] This series of operations is repeated to output data from the multi-connection device 30 to the game console 10. As described above, the connection states of the input connectors 32a - 32d of the multi-connection device 30 can be determined from the first four readings of data. Accordingly the game console 10 can effect a correct number of data readings from the multi-connection device 30, and places the select signal line SEL and the strobe signal line STRB at the high level when the reading of data is over.

[0081] FIG. 10 is a timing chart of the output terminal MD of the output selector 48 of the multi-connection device 30 and the input terminals JS1 - JS4 of the input selector 42 thereof. This is a timing chart for the case where a three-button joy pad 22 is connected to the input connector 32a of the multi-connection device 30, a mouse 26 is connected to the input connector 32b, and no input means are connected to the input connectors 32c, 32d.

[0082] When a vertical flyback period starts, the game apparatus console 10 reads data from the input means 20 connected to the input connector 12a (period JS).

[0083] Then, the input data is outputted from the multi-connection device 30 to the game console 10 (period MULTI). The signal lines SEL, STRB, ACK, DATA of the output terminal MD change as shown, and the input data prepared in the multi-connection device 30 is supplied to the game console 10.

[0084] Subsequently switch states of the mode switch 34 of the multi-connection device 30 are read (period MODE), and then connection states of the input connec-

tors 32a - 32b and the input data from the input means 20 are read (periods JS1, JS2, JS3, JS4).

[0085] With a three-button joy pad 22 connected to the input connector 32a, the signal lines P0 - P6 of the input terminal JS1 change as shown. With a mouse 26 connected to the input connector 32b, the signal lines P0 - P6 of the input terminal JS2 change as shown. Since no input means are connected to the input connectors 32c, 32d, changes of the signal lines P6 of the input terminals JS3, JS4 do not change the signal lines P0 - P5 as shown (periods JS3, JS4).

[0086] Thus according to this embodiment, the multi-connection device for use in a game apparatus sequentially reads data from a plurality of input means and formats the data to output the formatted data to the game apparatus in a group, so that the game console can be less burdened.

[0087] The present invention is not limited to the above-described embodiment and can cover modifications and variations.

[0088] For example, in the above-described embodiment, four input means can be connected to the multi-connection device for use in a game apparatus, but the multi-connection device may have any number of input connectors.

[0089] Input means to be connected to the multi-connection device may be of kinds other than those used in the above-described embodiment.

[0090] The storage format of the input data of the input means and the method for outputting the input data explained in the above-described embodiment are just examples, and the input data may be stored in other formats and outputted by other methods.

Claims

1. A multi-connection device (30) for use in a game apparatus comprising:

a plurality of input connectors (32) for connection to respective input means (20) ;
an output connector for connection to a body of the game apparatus (10) for outputting data to the game apparatus body (10); and

CHARACTERIZED BY a control unit (36) for sequentially reading data from input means (20) connected to the plural input connectors (32) and outputting the read data to the game apparatus body (10) via the output connector;

wherein, the control unit (36) includes a storage unit (36c) for storing the sequentially read data from the plural input means (20), and outputs via the output connector, in response to an instruction of the game apparatus (10), the sequentially read data from the plural input means stored by the storage unit (36c).

2. A multi-connection device (30) for use in a game apparatus according to claim 1, further comprising:

a selection means (34) having an individual selection state that is selective of one of the plural input connectors; 5
wherein, when the individual selection state is selected, the control unit (36) connects the input connector (32) selected by the selection means (34) to the output connector. 10

3. A multi-connection device for use in a game device according to claim 2, wherein:

the selection means (34) has a multi-selection state which is selective of the plurality of input connections; and 15
when the multi-selection state is selected, the control unit (36) outputs via the output connector, in response to an instruction of the game apparatus (10), the sequentially read data from the plural input means (20) stored by the storage unit (36c). 20

Patentansprüche

1. Vielfachverbindungseinrichtung (30) für eine Verwendung in einem Spielgerät, aufweisend:

- mehrere Eingangsverbinder (32) für eine Verbindung mit entsprechenden Eingabemitteln (20); 30
- einen Ausgangsverbinder für eine Verbindung mit einem Rumpf des Spielgeräts (10) zum Ausgeben von Daten an den Spielgeräterumpf (10); 35

gekennzeichnet durch

- eine Steuerungseinheit (36) zum sequentiellen Lesen von Daten von Eingabemitteln (20), die an den mehreren Eingangsverbindern (32) angeschlossen sind, und zum Ausgeben der gelesenen Daten über den Ausgangsverbinder an den Spielgeräterumpf (10); 40
- wobei die Steuerungseinheit (36) eine Speichereinheit (36c) zum Speichern der sequentiell von den mehreren Eingabemitteln (20) gelesenen Daten aufweist und in Reaktion auf einen Befehl des Spielgeräts (10) die sequentiell von den mehreren Eingabemitteln gelesenen, durch die Speichereinheit (36c) gespeicherten Daten über den Ausgangsverbinder abgibt. 45

2. Vielfachverbindungseinrichtung (30) für eine Verwendung in einem Spielgerät nach Anspruch 1, weiter aufweisend:

- eine Auswahleinrichtung (34), die einen individuellen Auswahlzustand hat, der einen der mehreren Eingangsverbinder auswählt;
- wobei, wenn der individuelle Auswahlzustand ausgewählt ist, die Steuerungseinheit (36) den Eingangsverbinder (32), der durch die Auswahleinrichtung (34) ausgewählt ist, mit dem Ausgangsverbinder verbindet.

3. Vielfachverbindungseinrichtung für eine Verwendung in einem Spielgerät nach Anspruch 2, wobei:

- die Auswahleinrichtung (34) einen Vielfach-Auswahlzustand hat, der die Vielzahl der Eingangsverbindungen auswählt; und
- wenn der Vielfach-Auswahlzustand ausgewählt ist, die Steuerungseinheit (36) in Reaktion auf einen Befehl des Spielgeräts (10) die sequentiell von den mehreren Eingabemitteln (20) gelesenen, durch die Speichereinheit (36c) gespeicherten Daten über den Ausgangsverbinder abgibt. 25

25 Revendications

1. Dispositif multi-connexion (30) destiné à être utilisé dans un appareil de jeu comportant :

une pluralité de connecteurs d'entrée (32) destinés à être reliés à des moyens d'entrée (20) respectifs, 30
un connecteur de sortie destiné à être relié à un corps de l'appareil de jeu (10) pour délivrer en sortie des données au corps de l'appareil de jeu (10), et 35

caractérisé en ce qu'il comporte une unité de commande (36) pour lire séquentiellement des données à partir des moyens d'entrée (20) reliés à la pluralité de connecteurs d'entrée (32) et délivrer en sortie les données lues au corps de l'appareil de jeu (10) via le connecteur de sortie, 40

dans lequel l'unité de commande (36) inclut une unité de mémoire (36c) pour mémoriser les données lues séquentiellement à partir des plusieurs moyens d'entrée (20), et délivre en sortie, via le connecteur de sortie, en réponse à une instruction de l'appareil de jeu (10), les données lues séquentiellement à partir de la pluralité de moyens d'entrée mémorisées par l'unité de mémoire (36c). 45

2. Dispositif multi-connexion (30) destiné à être utilisé dans un appareil de jeu selon la revendication 1, comportant de plus :

des moyens de sélection (34) ayant un état de sélection individuel indicatif de la sélection de 55

l'un de la pluralité de connecteurs d'entrée, dans lequel, lorsque l'état de sélection individuel est sélectionné, l'unité de commande (36) relie le connecteur d'entrée (32) sélectionné par les moyens de sélection (34) au connecteur de sortie. 5

3. Dispositif multi-connexion destiné à être utilisé dans un appareil de jeu selon la revendication 2, dans lequel : 10

les moyens de sélection (34) ont un état multi-sélection indicatif de la sélection de la pluralité des connexions d'entrée, et lorsque l'état multi-sélection est sélectionné, l'unité de commande (36) délivre en sortie, via le connecteur de sortie, en réponse à une instruction de l'appareil de jeu (10), les données lues séquentiellement à partir de la pluralité de moyens d'entrée (20) mémorisées par l'unité de mémoire (36c). 15 20

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FIG. 1

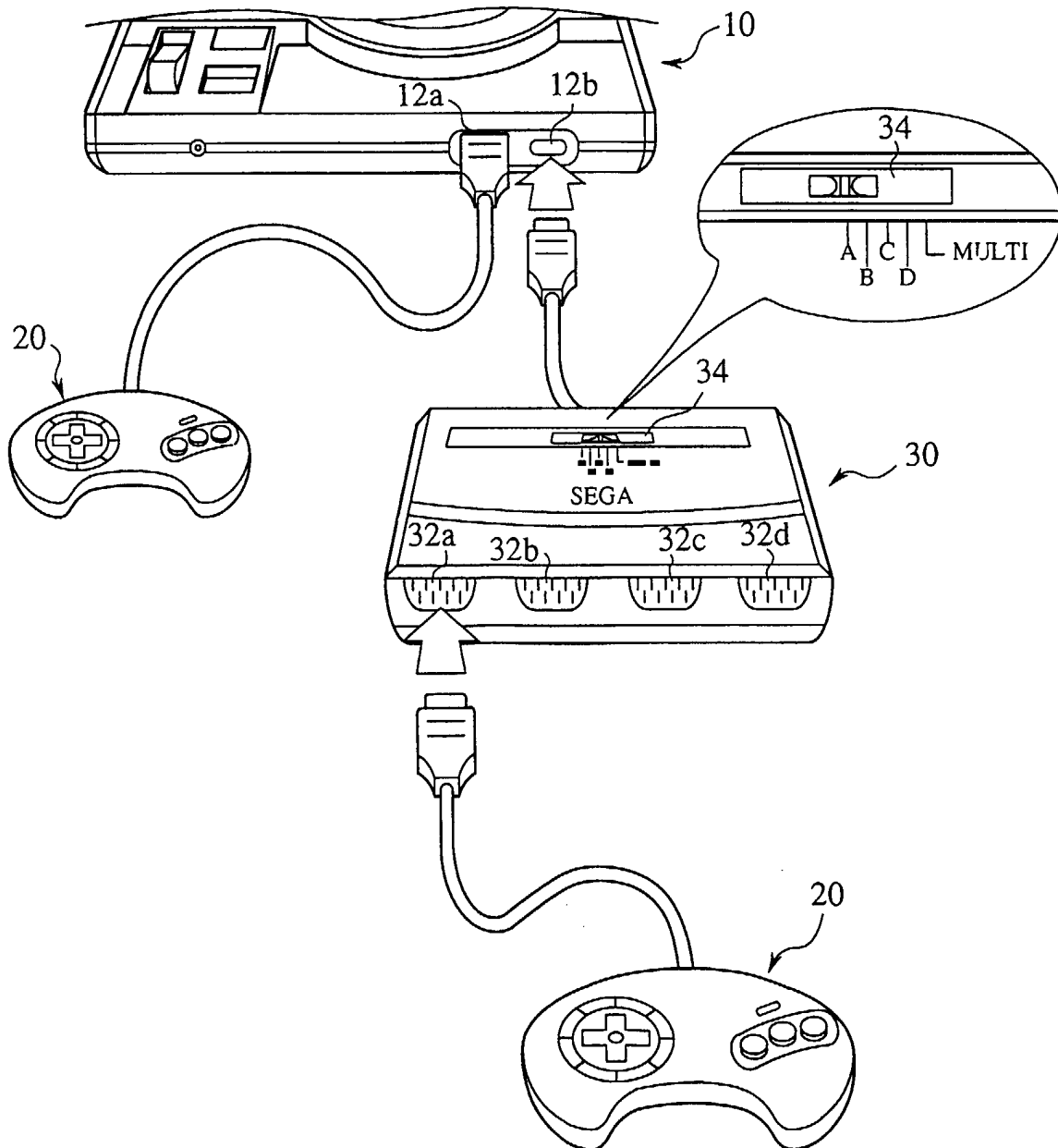


FIG. 2

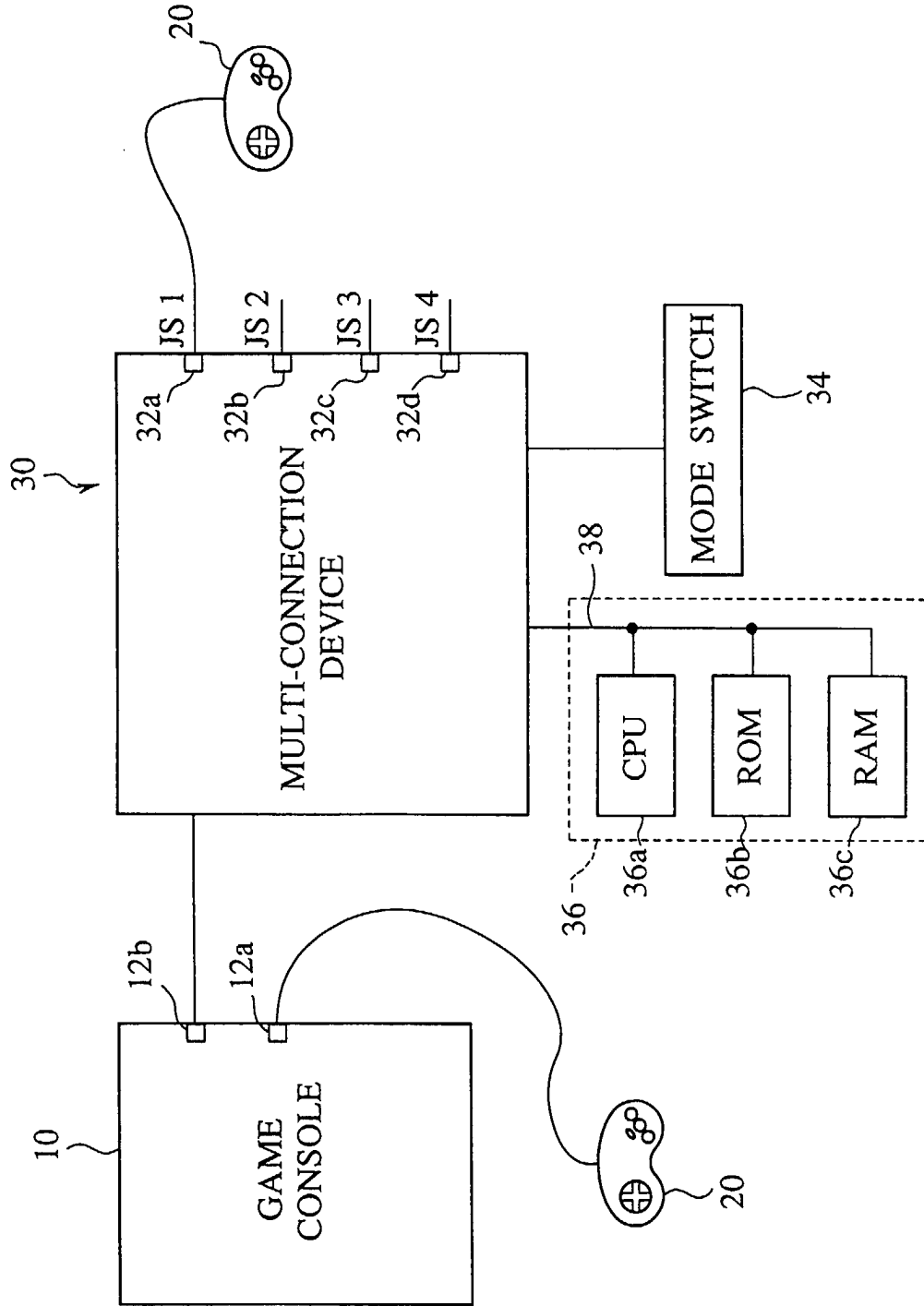


FIG.3A

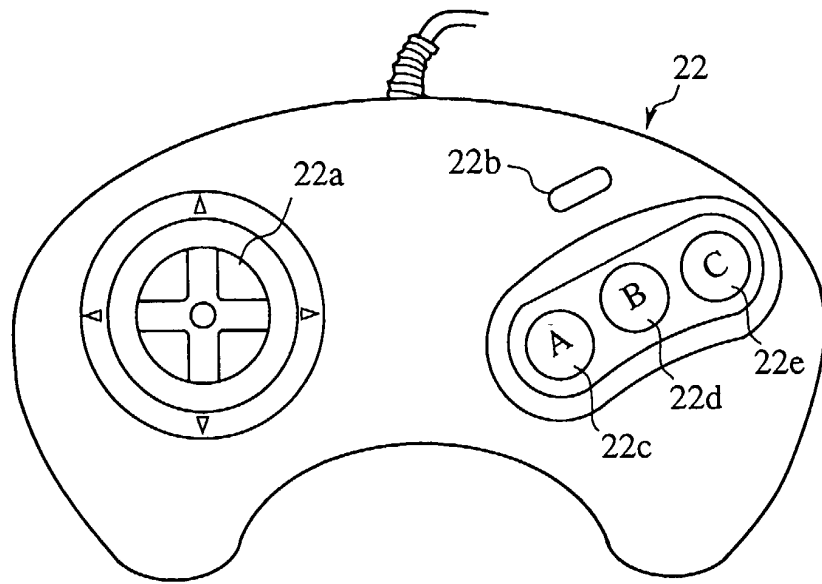


FIG.3B

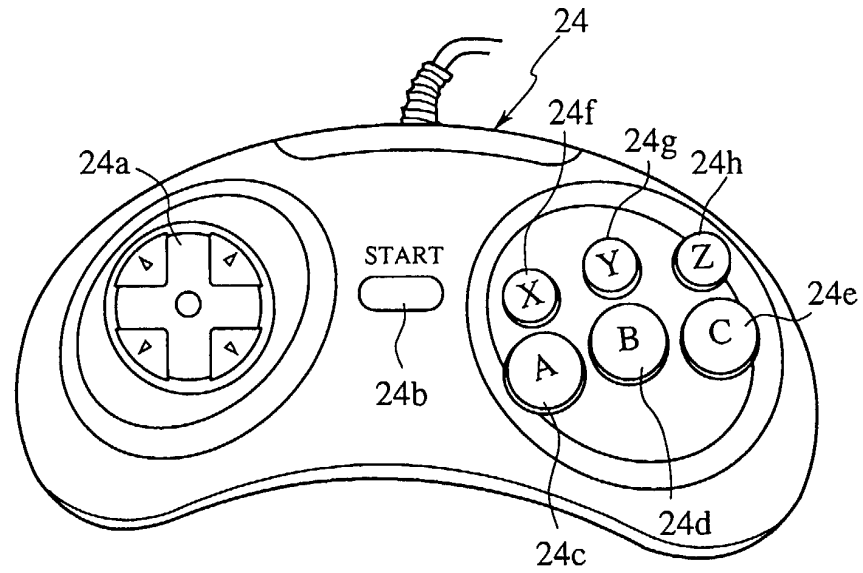


FIG.3C

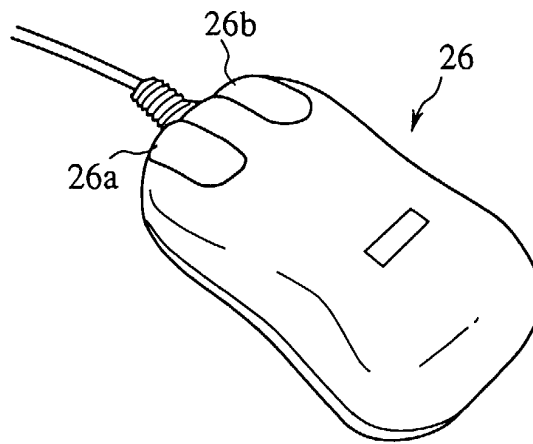
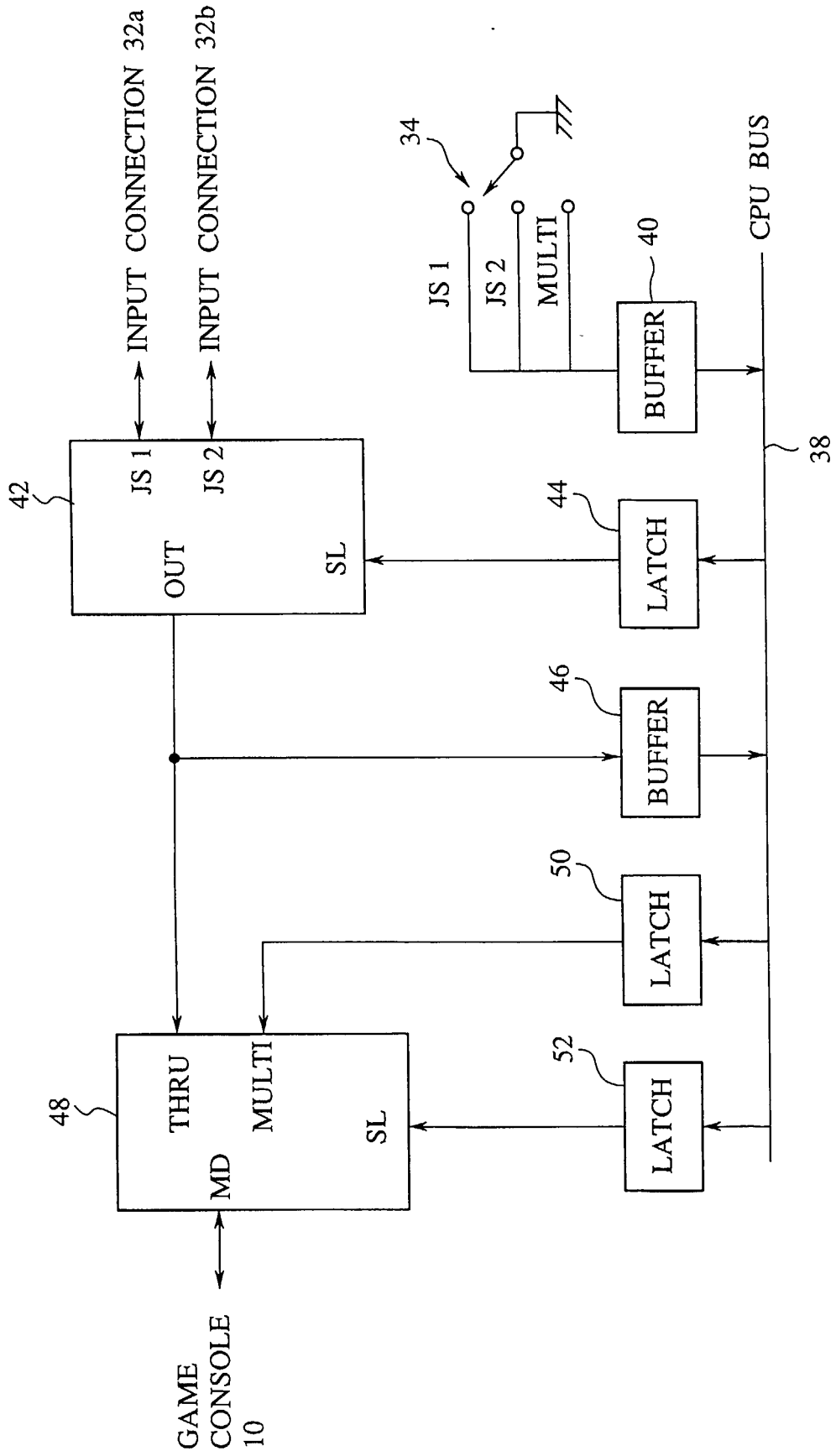


FIG. 4



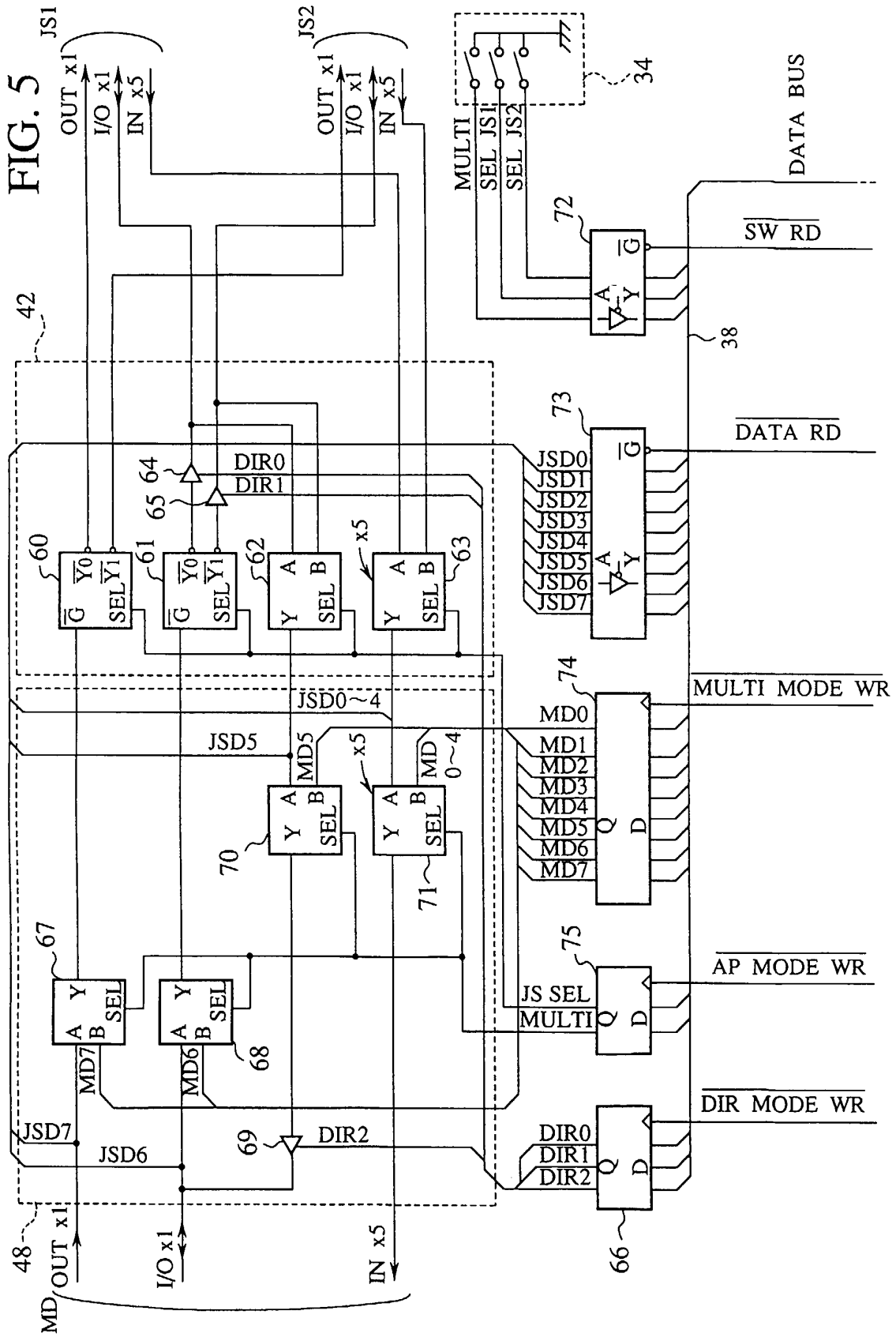


FIG. 6

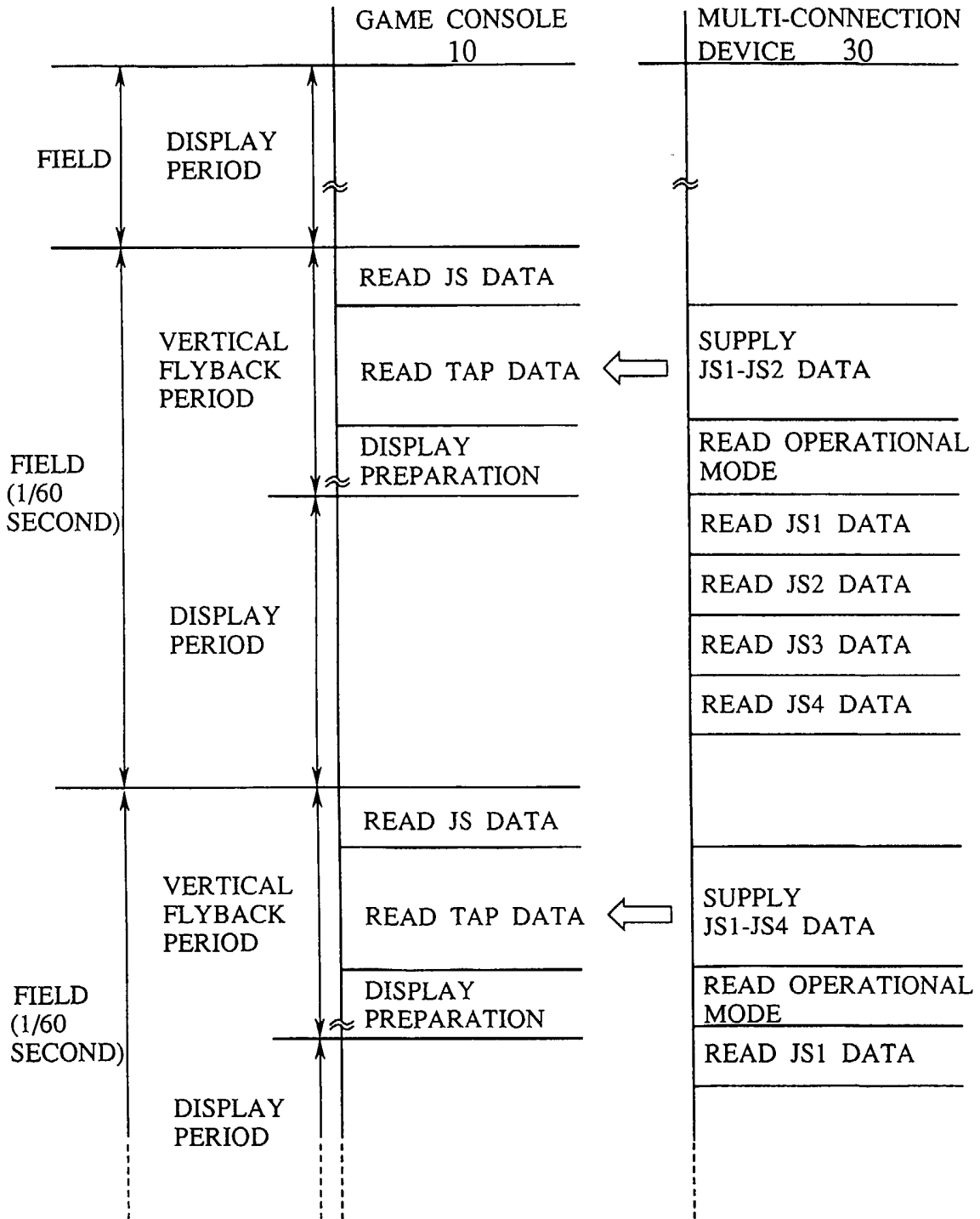


FIG. 7

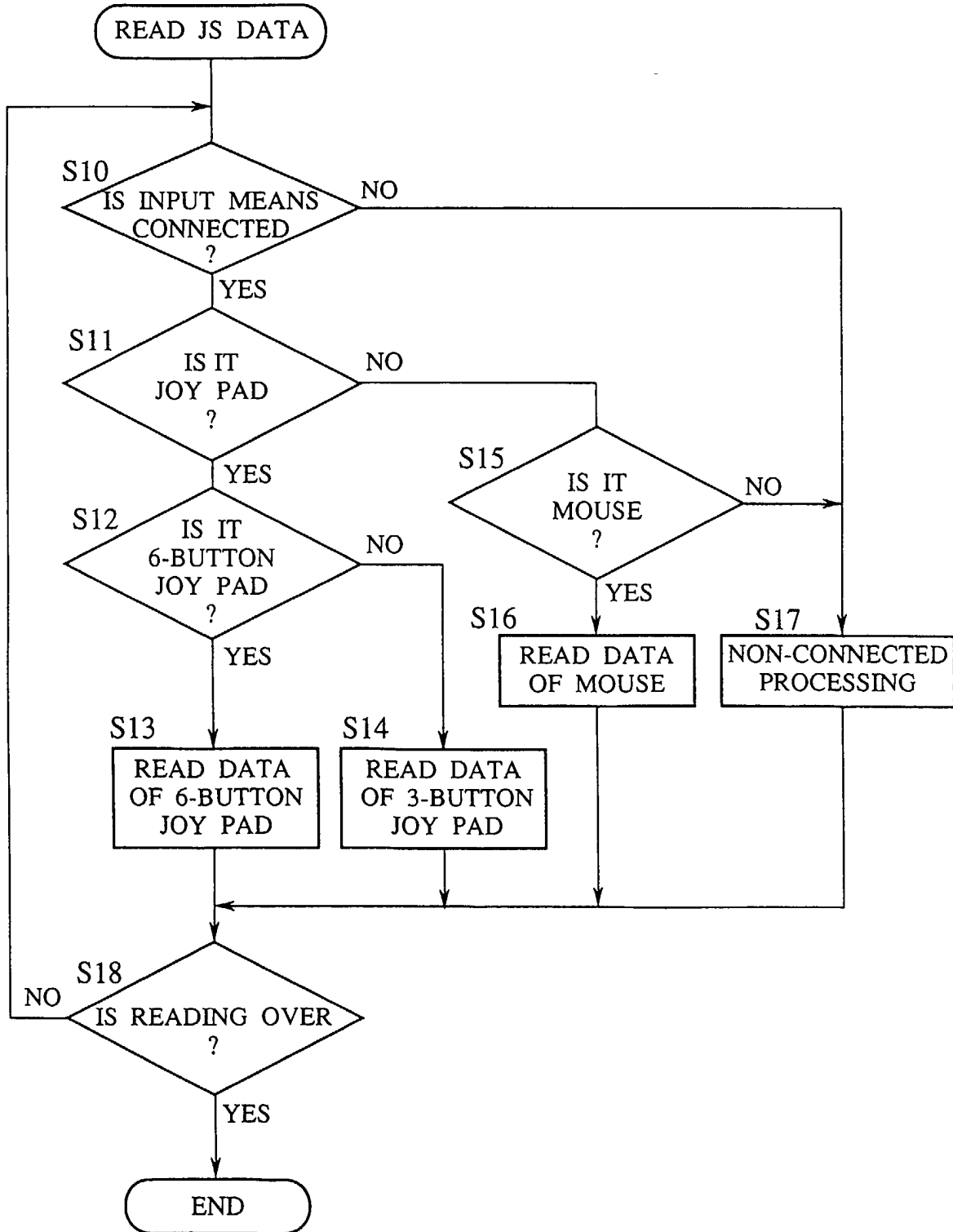
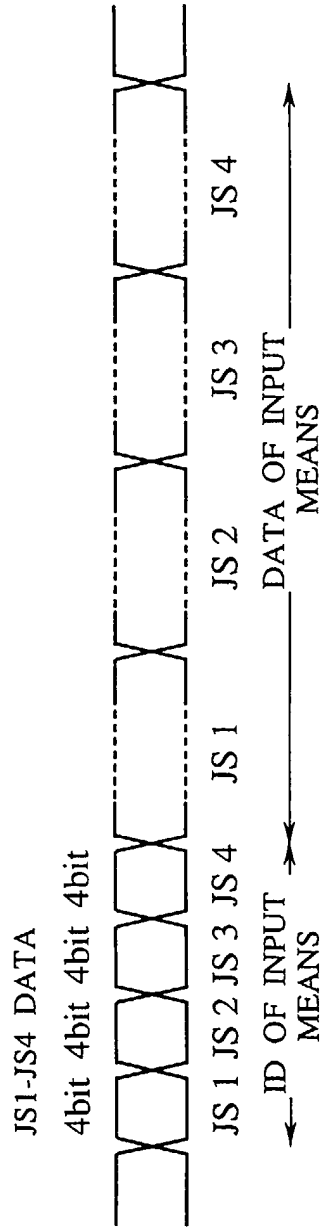


FIG. 8



KIND	ID	DATA	NUMBER OF READING
3-BUTTON JOY PAD	0000	8BIT	2TIMES
6-BUTTON JOY PAD	0001	12BIT	3TIMES
MOUSE 24 BIT	0010	24BIT	6TIMES
NON-CONNECTION	1111	0BIT	0TIME

FIG.9A

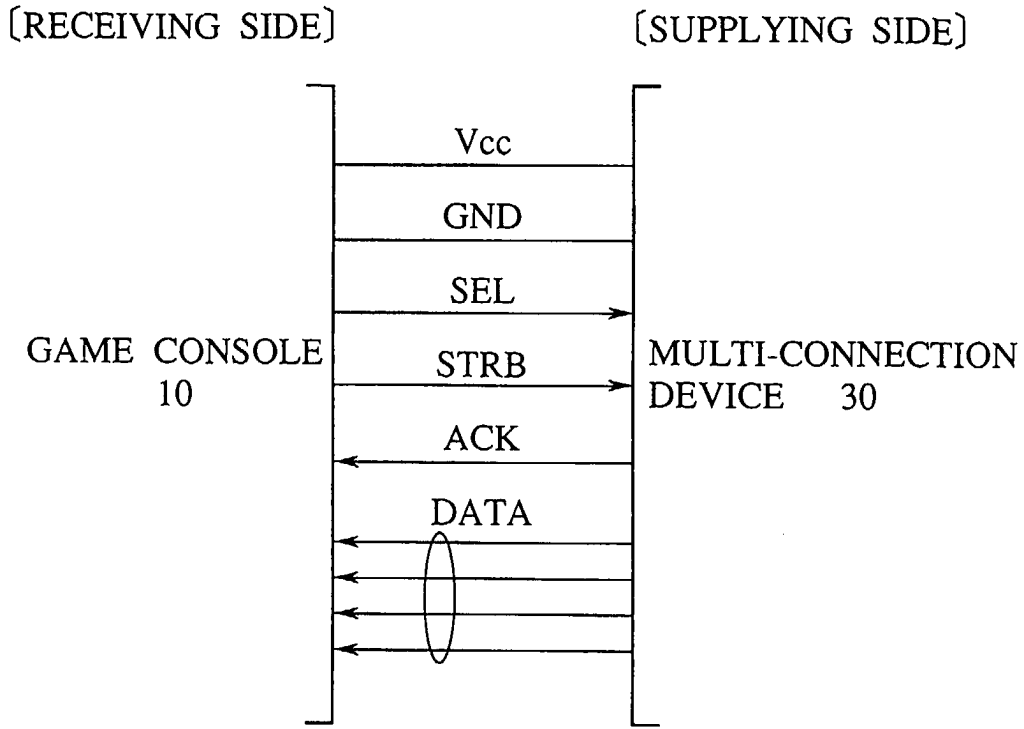


FIG.9B

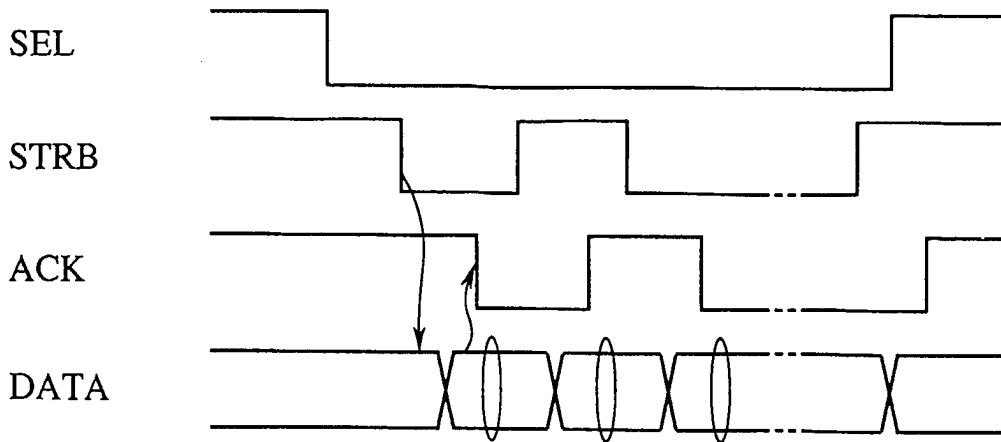


FIG.10

