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(54) **MECHANISM FOR CONNECTING CARTRIDGE**

MECHANISMUS ZUM ANSCHLUSS EINER KASSETTE

MECANISME DE RACCORDEMENT D'UNE CARTOUCHE

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(56) References cited:
EP-A- 0 214 762
FR-A- 2 598 837
JP-A- 1 219 974
JP-A- 57 030 280
JP-A- 60 167 067
JP-U- 4 088 993
US-A- 3 883 856
US-A- 4 426 122
US-A- 4 747 790

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Description

[0001] The present invention relates to a connection mechanism for a cartridge adapted to be connected to a domestic video game machine.

[0002] In typical domestic video game machines, a cartridge is removably connected to a body in the form of a small-sized case. The cartridge includes a cartridge case and a substrate having information recorded thereon, the substrate being enclosed in the cartridge case. The case-like body on the other hand includes an insertion hole for receiving the cartridge, and a connector provided therewithin for the connection to the substrate of the cartridge so as to read the information recorded on the substrate. In such domestic video game machines, the information recorded on the substrate is transmitted by way of the connector to external equipment such as a television set for the reproduction as a video or a voice. A control means is also provided for controlling the reproduced information.

[0003] Such domestic video game machines will enable any general family to readily play games therewith, since domestic televisions may be used as the external equipment. In addition, different games can be played with appropriate selection, by merely replacing one cartridge with another, which will allow wide users in a variety of age groups to utilize such video game machines.

[0004] However, the prior art entails the following problems. The cartridge insertion hole provided on the body is formed so as not to cause an accident such as detachment of the inserted cartridge due to a little vibration. In order to firmly retain the cartridge case, the insertion hole is shaped to such a degree that it is slightly larger than the cartridge case. On the inside of the insertion hole, an engagement means is provided for engaging with the cartridge case. The engagement means can be, for instance, a clamping section made of a resilient material or an engagement click. For this configuration, upon the insertion the cartridge must be precisely carried to an inlet of the insertion hole, with the need for the direction of insertion orthogonal to the body. Also, an engagement force of approximately 3 kg or over is needed to achieve an engagement with the engagement means. It is thus necessary for the establishment of a secure connection of the cartridge to the body to define the direction of the insertion or extraction with careful attention as well as to bring the cartridge into engagement with the engagement means using an engagement force of approximately 3 Kg or over. Also, at the time of extracting the cartridge, the same force is naturally required to release the engagement.

[0005] If the attention to the inserting direction or the engagement force as described above is poor, the cartridge is not to be securely engaged with the body, and hence the substrate and the connector are not coupled with each other, making it impossible to execute the video game. Moreover, in the worst case, a breakage of the substrate and/or connector will occur within the interior of the insertion hole, and in turn may possibly destroy the domestic video game machine.

[0006] In recent years, particularly, besides the cartridge allowing the domestic video game machine to be used to play a game, another type of cartridge is provided which allows the same to be used as an intellectual toy for infants and children in the second grade or under. It is however hard to ask the infants or children in the second grade or under for sufficient attention to the inserting direction or enough engagement force, thus resulting in a higher incidence of the above problems. It is difficult for the preschool children, in particular, to securely insert the cartridge into the hole due to their poor force. For this reason, help of their seniors such as parents and therefore additional labor and time have been hitherto necessitated.

[0007] Also, in an upward protruding manner, the cartridge is connected to the body horizontally placed for use, with the result that user's hand or an object is apt to come into contact with the cartridge. An excessive force applied onto the cartridge by such contact with the object will readily cause a defective contact or a damage.

[0008] The present invention was conceived to overcome the above problems involved in the prior art. It is therefore the object of the present invention to provide a cartridge connection mechanism ensuring, with a slight force, easy insertion and extraction of a cartridge adapted to be connected to a domestic video game machine as well as preventing the cartridge from being subjected to an excessive force in use.

[0009] In order to accomplish the above object, according to an aspect of the present invention defined in claim 1, there is provided, an electronic equipment with a cartridge connection mechanism for connecting a cartridge (2) including a substrate (4) storing data thereon, comprising:

an inlet (14) for the insertion of one end (3a) of said cartridge (2);
first support means (16) for supporting one end of said cartridge (2) inserted into said inlet (14);
cartridge back surface support means (6, 7) for supporting at least a part of the back surface of said cartridge (2) by abutting said cartridge (2) against said support means (16); and
a connector section (9, 13) for electrically connecting with the substrate (4) of said cartridge (2);

characterized in that
said connector section (9, 13) is capable of electrically connecting with the substrate (4) of said cartridge (2) when said cartridge (2) is inserted into said inlet (14) and the inserted cartridge (2) is pressed to rotate backwards until the back surface of said cartridge case is brought into abutment against said back surface support means (6, 7).

Fig. 1 is a conceptual diagram of a domestic video game machine;
Fig. 2 is a sectional side elevation of a cartridge connection mechanism configured in accordance with an embodiment of the present invention, showing the state at the time of the insertion/extraction of a cartridge;
Fig. 3 is an enlarged view of the principal part of Fig. 2;
Fig. 4 is a sectional side elevation showing the state upon the connection of the cartridge of Fig. 2;
Fig. 5 is an enlarged view of the principal part of Fig. 4;
Fig. 6 is a conceptual diagram showing the direction of insertion during the cartridge inserting operation;
Fig. 7 is a conceptual diagram showing the direction of press during the cartridge inserting operation;
Fig. 8 is a conceptual diagram showing the operation of an ejection button during the cartridge extracting operation; and
Fig. 9 is a conceptual diagram showing the direction of extraction during the cartridge extracting operation.

(1) Principal Embodiment

[0010] A preferred embodiment of the present invention will now be described with reference to the accompanying drawings. This embodiment is intended to encompass inventions defined in appended claims 1 to 6.

[0011] In this embodiment, a cartridge 2 is removably connected to a body 1 of a video game machine for domestic use. The cartridge 2 comprises a cartridge case 3 and a substrate 4 having information recorded thereon, the substrate 4 being enclosed within the cartridge case 3. The cartridge case 3 includes at its lower portion a load/unload section 3a for the connection to the body 1. The load/unload section 3a has at its bottom end an opening, with the substrate 4 being exposed into the interior of the load/unload section 3a. On the surface of such a cartridge case 3 is mounted a printed matter 5 such as a book whose pages can be freely turned over. The printed matter 5 contains information which is common to that of the substrate 4 and printed or described as images. The cartridge case 3 has on the surface at its top end an engagement groove 3b formed to be engaged with an engagement click provided as a retainer section which will be described later. An operation means 1a such as a touch pen is provided in order to allow the external equipment such as a television set to reproduce as a video or a voice the information contained in the substrate and the printed matter.

[0012] To connect such a cartridge 2 to the body 1 of the domestic video game machine, the body 1 is configured as shown in Fig. 1. The video game machine body 1 is provided with a cover section 6 free to retain, open or close to serve as a connection/retainer section for removably connecting and retaining the cartridge 2. The cover section 6 is configured so as to be vertical when opened. In this embodiment, let X-X direction, Y-Y direction, and Z-Z direction in Fig. 1 be transverse direction, front-to-back direction and vertical direction, respectively.

[0013] Such a body cover section 6 comprises an upright platelike support frame 7 for supporting the cartridge while being in abutment against the rear side of the cartridge upon connecting the cartridge, and a protection frame 8 having a curved surface forward protruding from the periphery of the support frame 7 for protecting the periphery of the cartridge. The interior of the protection frame 8 on the lower side is configured as a connecting section 9 for the connection with the cartridge 2. On the contrary, the protection frame 8 on the upper side is configured as a retainer section for the cartridge 2.

[0014] The connecting section 9 is provided with an insertion hole 11 for allowing the insertion of the load/unload section 3a of the cartridge. An inlet opening 12 of the insertion hole 11 is formed so as to have in the transverse direction substantially the same width as that of the load/unload section 3a of the cartridge and to have in the forward and backward direction an enough larger width than that of the load/unload section 3a. It is to be appreciated that the rear end of the insertion hole 11 coincides with a joint between the support frame 7 and the protection frame 8 on the lower side. Provided within the interior of the thus opened insertion hole 11 are a connector 13 adapted to be connected to the substrate 4, and a gate 14 serving as an insertion guide for the cartridge case 3. It will be noted that the inlet opening of the insertion hole is formed on the right of the body cover section 6 since the pages of the printed matter 5 mounted on the cartridge 2 are intended to be turned to the left.

[0015] The connector 13 is fixedly secured to a fixed member 15 disposed within the body cover 6. In the front portion of the connector 13 are formed a connection groove 16 for receiving the substrate 4 and a case groove 17 for receiving the rear side of the cartridge case 3, both grooves opening upward. A front wall 18 defining the connection groove 16 has a height sufficiently less than that of a rear wall 19, thereby ensuring that when inserting the cartridge 2 at a forward tilt, the substrate 4 is smoothly fitted into the connection groove 16. The front wall 18 further has a taper 18a so as to be downward inclined toward the wall surface confronting the connection groove 16. The surface of the rear wall 19 confronting the groove 16 is formed upright and is provided with a contact pin 20 arranged on the upper portion of the the surface, the contact pin 20 having a forward biasing resilience. Within the connection groove 16 thus configured, the inserted substrate 4 is rotated on a fulcrum 4a, in the vicinity of the bottom surface of the connection groove 16, from the state where the substrate is forward tilted along the taper 18a to the upright state.

[0016] The gate 14 comprises a gate upper portion 21 provided along the inner surface of the lower side protection frame constituting the connecting section 9, and right and left sidewalls 22 positioned so as not to come into contact with the inserted cartridge 3, the gate upper portion 21 being carried on the right and left sidewalls 22. Between the right and left sidewalls 22 of the gate 14 extends a gate pivotal shaft 14a positioned at the rotational fulcrum 4a of the substrate 4, the gate 14 being mounted rotatably around the gate pivotal shaft in the forward and backward direction. A torsion coil spring 23 is arranged on the gate pivotal shaft 14a in such a manner that the coil 23a is wound on the outer periphery of the shaft 14a. On its rewinding direction side, a forward arm 23b of the torsion coil spring 23 is engaged with a fixed member 24 of the connecting section 9, while the rearward arm 23c thereof is fixed to the ends of the gate sidewalls 22.

[0017] The gate upper portion 21 is provided with a gate opening section 25 corresponding to the inlet opening 12 of the insertion hole 11. The gate opening section 25 is defined by a front gate 21a and a rear gate 21b in such a manner that the front-to-back opening width of the gate opening section 25 is larger than the front-to-back width of the load/unload section 3a of the cartridge case 3 and smaller than that of the inlet opening 12 of the insertion hole 11. The end of the front gate 21a is brought into engagement with the forward end of the inlet opening 12 of the insertion hole 11, thereby limiting the forward rotation of the gate 14. At their respective gate opening section side ends, the above front gate 21a and rear gate 21b are fitted with a downward rotatable gate door 26. The couple of doors 26 are adapted to close the gate opening section 25 unless the cartridge 2 is inserted.

[0018] As a retainer section for the cartridge 2, on the other hand, the upper side protection frame 8 of the body cover section 6 is fitted with an engagement click 27 to be engaged with the engagement groove 3b located at the top end of the cartridge case 3. The engagement click 27 is provided in such a manner that it is vertically rotatable on a pivotal shaft 28 extending from the support frame 7 of the body cover section 6. The upper side protection frame 8 of the body cover section 6 is further fitted with an ejection button 29 for throwing out the cartridge being under connection. The ejection button 29 is provided in such a manner that it is vertically rotatable on the same pivotal shaft 28 as used for the engagement click 27. The ejection button 29 is further fitted with a resilient member 30 for downward biasing the ejection button, thereby urging downward the engagement click 27 having the same pivotal shaft 28 as the ejection button 29.

(Function of Embodiment)

[0019] The function of this embodiment thus configured is as follows. In the domestic video game machine 1 incorporating a cartridge connection mechanism of this embodiment, unless a cartridge is under connection, the gate 14 is urged so as to forward rotate around the gate pivotal shaft 14a by means of the torsion coil spring 23. This will allow the gate 14 to be rotated to a position where the end of the front gate 21a abuts against the fore end of the inlet opening 12 of the insertion hole. Under this condition, the inlet opening 12 of the insertion hole is closed by the rear gate 21b located at the gate upper potion and by the front and rear gate doors 26 of the gate opening section.

[0020] When the cartridge 2 is required to be connected to the body cover section 6, the load/unload section 3a of the cartridge is inserted into the insertion hole 11 as shown in Fig. 6. At that time, the rear part of the inlet opening 12 of the insertion hole is blocked by the rear gate 21b, and hence the cartridge is to be inserted into the gate opening section 25. This is achieved by inserting the cartridge 2 in such a manner as to downward press the gate doors 26, and by fitting the substrate 4 within the cartridge into the connection groove 16 along the taper 18a of the connector 13. The front and rear sides of the cartridge clamping the substrate 4 are inserted, respectively, along the fore end of the connector 13 and along the interior of the case groove 17 of the connector. In this manner, the cartridge 2 is inserted until the lower end of the substrate 4 abuts against the bottom of the connection groove 16.

[0021] After the complete insertion of the cartridge, the upper part of the cartridge 2 is pressed backward as shown in Fig. 7. This allows the cartridge 2 to rotate backward until the back surface of the cartridge case 3 is brought into abutment against the upright support frame 7. At that time, the back surface of the cartridge is first abutted against the rear gate 21b to press the rear gate 21b. This will cause the gate 14 to be backward rotated on the pivotal shaft 14a constituting the fulcrum 4a for the substrate. It is to be appreciated that when the back surface of the cartridge case 3 comes into abutment against the support frame 7, the substrate 4 within the cartridge 2 presses the contact pin 20 and abuts against the upright front surface of the rear wall 19 defining the connection groove 16.

[0022] A backward rotation of the cartridge 2 allows the engagement click 27 of the upper side protection frame of the body cover section 6 to come into contact with the top of the cartridge case 3, and a further backward rotation of the cartridge 2 causes the engagement click 27 to upward rotate on the pivotal shaft 28. At that time, while being downward urged by a biasing force of the resilient member 30 of the ejection button 29 having the same pivotal shaft 28, the engagement click 27 slides along the top surface of the cartridge case, and once the cartridge becomes vertical, is snugly engaged with the engagement groove 3b. In this manner, the cartridge 2 is connected to the body 1 of the video game machine. Afterwards, to play a game, for example, the operation means not shown of the video game machine

1 is operated so as to allow the information of the substrate 4 or the information of the printed matter 5 placed on the cartridge surface to be reproduced on the external equipment such as a television set not shown.

[0023] Then, upon the extraction of the cartridge 2, as shown in Fig. 8, the ejection button 29 disposed on the upper side protection frame of the body cover section 6 is upward rotated. This will result in an upward rotation of the engagement click 27 fitted to the same pivotal shaft 28 as the ejection button 29, causing a disengagement of the cartridge case from the engagement groove 3b. On the contrary, the gate 14 is at all times subjected to a forward biasing force by the torsion coil spring 23. Therefore, once the engagement click 27 is disengaged from the engagement groove 3b, the gate will forward rotate. As a result of this, the case 3 of the cartridge 2 is forward pressed by the rear gate 21b. In addition, the substrate of the cartridge is at all times forward urged by the contact pin having a resilience provided on the connection groove 16 of the connector 13. Thus, the cartridge 2 is forward tilted.

[0024] When raising the cartridge 2 under this condition, as shown in Fig. 9, it can be easily pulled out from the insertion hole 11.

(3) Effect of Embodiment

[0025] The effect of the cartridge connection mechanism of this embodiment described above is as follows. In this embodiment, the protection frame 8 is provided with the cartridge insertion hole 11 whose opening has a larger front-to-back width and whose insertion part is guided by the gate 14, with the result that the insertion hole is forward tilted approximately 30 degrees, facilitating the cartridge inserting operation. By virtue of this configuration, the cartridge 2 can be easily loaded at a tilt into the insertion hole. In particular, this angle will contribute to an easy insertion by infants.

[0026] Furthermore, after the insertion, the upper portion of the cartridge is backward pressed to bring the back surface of the cartridge case 3 into abutment against the support frame 7, thereby ensuring a secure connection of the cartridge substrate 4 with the connector 13. Although the backward pressing force at that time works in the opposite direction to the biasing force of the torsion coil spring 23, the connection between the substrate 4 and the connector 13 can be accomplished by a slight force with the aid of the principle of the lever using the fulcrum 4a at the lower end of the substrate 4. A force necessary for the secure connection is of the order of 500g which is considerably smaller than 3kg required in the prior art. This will enable an infant to achieve the connection of the cartridge by himself.

[0027] In addition, simultaneously with the abutment of the cartridge against the support frame, the engagement click 27 is engaged with the engagement groove 3b located at the top of the cartridge, whereupon based on resultant sound or feeling, the user is capable of judging that the substrate 4 and the connector 13 are under secure connection. Then, irrespective of a release of his hand from the cartridge, the connection between the substrate and the connector can be securely maintained.

[0028] Also, in the case of extraction of the cartridge, by use of the ejection button 29, only a slight force is required to readily disengage the engagement click 27 from the engagement groove 3b of the cartridge. Since the cartridge 3 is forward tilted by the biasing force of the torsion coil spring 23 and the contact pin 20 of the connector 13, the cartridge is easy to pull out. It is to be noted that the contact pin will ensure an improved contact since it rubs the substrate pattern upon inserting the cartridge.

[0029] In this manner, the cartridge is retained by two vertically separated points for the engagement with the body, so that the cartridge insertion/extraction can be accomplished using a slight force.

[0030] Further, in order to securely retain the cartridge within the body, the back surface of the cartridge abuts against the body cover section, and the upper and lower edges of the cartridge are engaged with the body cover section. This will prevent the occurrence of an accident that the cartridge comes off when the body undergoes a vibration. Although when particularly using a touch pen as the operation means, the cartridge case may be subjected to a contact force, this force and the resultant vibration can be absorbed. Moreover, except the front, the cartridge is not to be accessed by the hands or objects since the periphery of the cartridge is enclosed by the protection frame, whereby the cartridge will not be subjected to any excessive force. Accordingly, the secure connection of the substrate with the body is accomplished, and hence the problems such as defective contact will not take place unless the body itself undergoes a greater vibration, for example, due to a fall onto the floor, resulting in a high reliability.

[0031] Also, in this embodiment, the cartridge is loaded within the body cover section capable of opening and closing, and hence after the completion of the game, the cover section may be closed with the cartridge being loaded. Under this condition, the cartridge is protected by the body. For this reason, even though the body is carried by the user, the cartridge will not be subjected to any excessive force and damage.

(4) Other Embodiments

[0032] The present invention is not intended to be limited to the above-described embodiment, and its specific shapes or attachment positions or manners are appropriately modifiable.

[0033] By way of example, a means for forward biasing the gate 14 is not limited to the torsion coil spring 23, but instead the other resilient member may be employed to forward press the upper portion of the back surface of the gate for biasing. Also, the body cover sec-

tion 6 is not limited to the configuration in which its support frame 7 becomes vertical when opened, but instead may be tilted at an angle desired by the game machine user. In such case, since the connecting section and the interior connector also similarly rotate, the cartridge may be tilted at the same angle as the support frame of the cover section. Further, the cartridge surface need not necessarily be mounted with a book, but instead a card bearing information printed and described thereon and common to the substrate may be mounted. No mounting is also possible. Alternatively, an instruction book may be mounted thereon for use if needed by the user.

[0034] Furthermore, the cartridge connection mechanism of the present invention is not limited to the provision into the domestic video game machine, but instead may be incorporated into electronic equipment of a type deriving information from the other cassette, whereby the same effect as the above-described embodiment can be obtained.

[Industrial Applicability]

[0035] According to the present invention, as described above, there can be provided a high-reliable cartridge connection mechanism capable of easily executing the insertion/extraction of the cartridge to be connected to the domestic video game machine using a slight force, and not subjected to any excessive force in the process of use.

Claims

1. An electronic equipment with a cartridge connection mechanism for connecting a cartridge (2) including a substrate (4) storing data thereon, comprising:

   an inlet (14) for the insertion of one end (3a) of said cartridge (2);
   first support means (16) for supporting one end of said cartridge (2) inserted into said inlet (14);
   cartridge back surface support means (6, 7) for supporting at least a part of the back surface of said cartridge (2) by abutting said cartridge (2) against said support means (16); and
   a connector section (9, 13) for electrically connecting with the substrate (4) of said cartridge (2);

   characterized in that
   said connector section (9, 13) is capable of electrically connecting with the substrate (4) of said cartridge (2) when said cartridge (2) is inserted into said inlet (14) and the inserted cartridge (2) is pressed to rotate backwards until the back surface of said cartridge case is brought into abutment against said back surface support means (6, 7).

2. The electronic equipment according to claim 1, further comprising second support means (27) for supporting the other end (3b) of said cartridge (2) when said cartridge (2) is supported by said cartridge back surface support means (6, 7).

3. The electronic equipment according to claim 2, wherein said second support means (27) is a click-like projecting member to be engaged with a cutout section (3b) formed in said cartridge (2).

4. The electronic equipment according to any one of claims 1 through 3, wherein said connector section (9, 13) comprises a contact member (20) formed from a conductive resilient material for biasing the substrate (4) of said cartridge (2).

5. The electronic equipment according to any one of claims 1 through 4, wherein said inlet (14) is provided and rotatably formed on the outer edge portion (8) of said back surface support means (6, 7).

6. The electronic equipment according to claim 5, further comprising a resilient member (23) for biasing said inlet (14) in the direction away from said back surface support means (6, 7).

7. The electronic equipment according to any one of claims 1 through 6, wherein said back surface support means (6, 7) consists of a substantially planar shaped member (7) and supports said cartridge (2) by coming into contact with the back surface of the cartridge (2).

8. A cartridge used for the electronic equipment with a cartridge connection mechanism according to any one of claims 1 through 7,
   characterized by a connecting section to be electrically connected with said connector section (9, 13) when the cartridge (2) is abutted against said back surface support means (6, 7).

9. A cartridge according to claim 8 used for the electronic equipment with a cartridge connection mechanism according to claim 2, further **characterized by** a cutout section (3b) for engaging with said second support means (27).

Patentansprüche

1. Elektronische Vorrichtung mit einem Kassettenverbindungsmechanismus zum Verbinden einer Kassette (2), die ein Substrat (4) zum Abspeichern von Daten enthält, mit:

   einem Einlaß (14) zum Einsetzen eines Endes (3a) der Kassette (2);

einer ersten Halterungseinrichtung (16) zur Halterung eines Endes der in den Einlaß (14) eingesetzten Kassette (2);
einer Kassettenrückseitenhalterungseinrichtung (6, 7) zur Halterung mindestens eines Teils der Rückseite der Kassette (2) durch Anlage der Kassette (2) gegen die Halterungseinrichtung (16); und
einer Verbindersektion (9, 13) zur elektrischen Verbindung mit dem Substrat (4) der Kassette (2);

dadurch gekennzeichnet, daß
die Verbindersektion (9, 13) in der Lage ist, eine elektrische Verbindung mit dem Substrat (4) der Kassette (2) herzustellen, wenn die Kassette (2) in den Einlaß eingesetzt und auf die eingesetzte Kassette (2) Druck ausgeübt wird, um sie rückwärts zu schwenken, bis die Rückseite des Kassettengehäuses in Anlage gegen die Rückseitenhalterungseinrichtung (6, 7) gebracht wird.

2. Elektronische Vorrichtung nach Anspruch 1, ferner mit einer zweiten Halterungseinrichtung (27) zur Halterung des anderen Endes (3b) der Kassette (2), wenn die Kassette (2) von der Kassettenrückseitenhalterungseinrichtung (6, 7) gehaltert wird.

3. Elektronische Vorrichtung nach Anspruch 2, bei welcher die zweite Halterungseinrichtung (27) ein klinkenähnliches vorstehendes Teil ist, das mit einer in der Kassette (2) geformten, ausgeschnittenen Sektion (3b) in Eingriff zu bringen ist.

4. Elektronische Vorrichtung nach einem der Ansprüche 1 bis 3, bei welcher die Verbindersektion (9, 13) ein aus einem leitenden, elastischen Material geformtes Kontaktelement (20) zur Vorspannung des Substrates (4) der Kassette (2) aufweist.

5. Elektronische Vorrichtung nach einem der Ansprüche 1 bis 4, bei welcher der Einlaß (14) am äußeren Randabschnitt (8) der Rückseitenhalterungseinrichtung (6, 7) vorgesehen und drehbar ausgebildet ist.

6. Elektronische Vorrichtung nach Anspruch 5, ferner mit einem elastischen Teil (23) zur Vorspannung des Einlasses (14) in der Richtung von der Rückseitenhalterungseinrichtung (6, 7) weg.

7. Elektronische Vorrichtung nach einem der Ansprüche 1 bis 6, bei welcher die Rückseitenhalterungseinrichtung (6, 7) aus einem im wesentlichen eben geformten Teil (7) besteht und die Kassette (2) durch In-Kontakt-Bringen mit der Rückseite der Kassette (2) haltert.

8. Kassette, die für die elektronische Vorrichtung mit einem Kassettenverbindungsmechanismus nach einem der Ansprüche 1 bis 7 verwendet wird, **gekennzeichnet durch** eine Verbindungssektion, die mit der Verbindersektion (9, 13) elektrisch zu verbinden ist, wenn die Kassette (2) in Anlage an die Rückseitenhalterungseinrichtung (6, 7) gebracht wird.

9. Kassette nach Anspruch 8, die für die elektronische Vorrichtung mit einem Kassettenverbindungsmechanismus nach Anspruch 2 verwendet wird, ferner **gekennzeichnet durch** eine ausgeschnittene Sektion (3b) für den Eingriff mit der zweiten Halterungseinrichtung (27).

Revendications

1. Equipement électronique avec mécanisme de raccordement d'une cartouche pour connecter une cartouche (2) incluant un substrat (4) stockant des données, comprenant :

une entrée (14) pour l'insertion d'une extrémité (3a) de ladite cartouche (2) ;
des premiers moyens de support (16) pour supporter une extrémité de ladite cartouche (2) insérée dans ladite entrée (14) ;
des moyens formant supports de la surface arrière de la cartouche (6, 7) pour supporter au moins une partie de la surface arrière de ladite cartouche (2) en appuyant ladite cartouche (2) contre lesdits moyens de support (16) ; et
une section de connecteur (9, 13) pour une connexion électrique avec le substrat (4) de ladite cartouche (2) ;

caractérisé en ce que
ladite section de connecteur (9, 13) est capable d'être reliée électriquement avec le substrat (4) de ladite cartouche (2) lorsque ladite cartouche (2) est insérée dans ladite entrée (14) et la cartouche insérée (2) est comprimée pour pivoter en arrière jusqu'à ce que la surface arrière de ladite cartouche soit en appui contre lesdits moyens formant supports de la surface arrière (6, 7).

2. Équipement électronique selon la revendication 1, comprenant en outre des seconds moyens de support (27) pour supporter l'autre extrémité (3b) de ladite cartouche lorsque ladite cartouche (2) est supportée par lesdits moyens formant supports de la surface arrière de la cartouche (6, 7).

3. Équipement électronique selon la revendication 2, dans lequel lesdits seconds moyens de support (27) sont un élément de projection de type à clic, à

engager dans une section de déconnexion (3b) formée dans ladite cartouche (2).

4. Équipement électronique selon l'une quelconque des revendications 1 à 3, dans lequel ladite section de connecteur (9, 13) comporte un élément de contact (20) formé à partir d'un matériau élastique conducteur pour polariser le substrat (4) de ladite cartouche (2).

5. Équipement électronique selon l'une quelconque des revendications 1 à 4, dans lequel ladite entrée (14) est fournie et formée de manière rotative sur la partie d'arête extérieure (8) desdits moyens formant supports de la surface arrière (6, 7).

6. Équipement électronique selon la revendication 5, comprenant également un élément élastique (23) pour incliner ladite entrée (14) dans la direction éloignée desdits supports de la surface arrière (6, 7).

7. Équipement électronique selon l'une quelconque des revendications 1 à 6, dans lequel lesdits moyens formant supports de la surface arrière (6, 7) sont constitués d'un élément sensiblement plan (7) et supportent ladite cartouche (2) en entrant en contact avec la surface arrière de la cartouche (2).

8. Cartouche utilisée pour l'équipement électronique avec mécanisme de raccordement d'une cartouche selon l'une quelconque des revendications 1 à 7, **caractérisée par** une section de connexion destinée à être raccordée électriquement à ladite section de connecteur (9, 13) lorsque la cartouche (2) est appuyée contre lesdits moyens formant supports de la surface arrière (6, 7).

9. Cartouche selon la revendication 8 utilisée pour l'équipement électronique avec mécanisme de raccordement de cartouche selon la revendication 2, **caractérisée en outre par** une section de déconnexion (3b) destinée à s'engager avec lesdits seconds moyens de support (27).

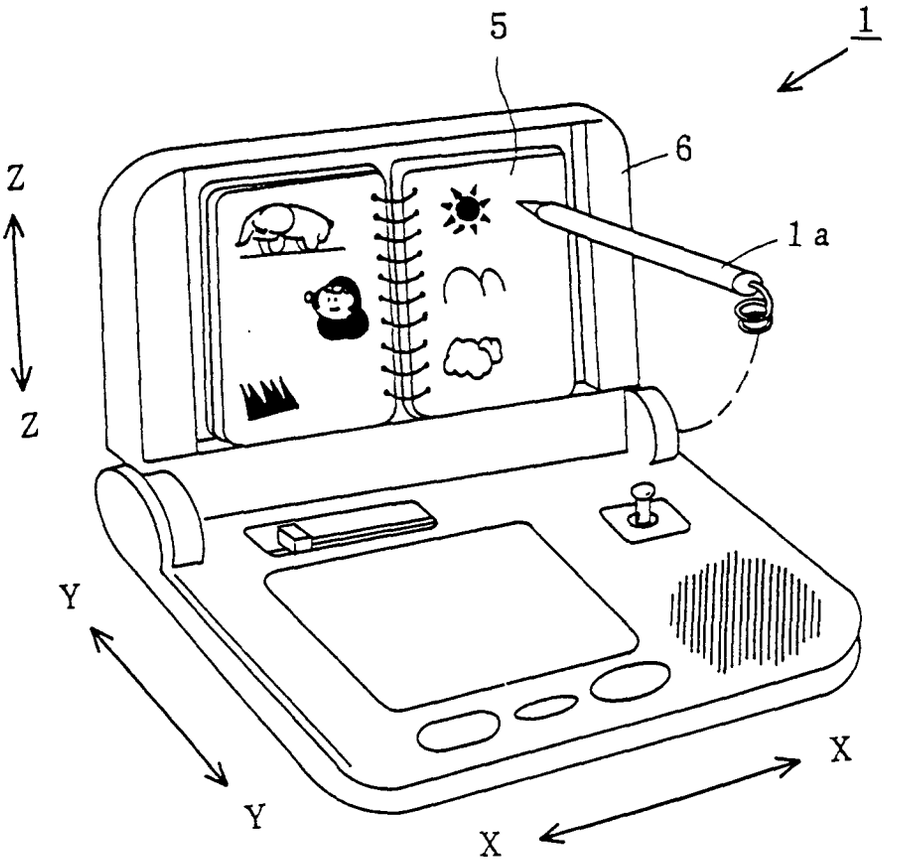


FIG.1

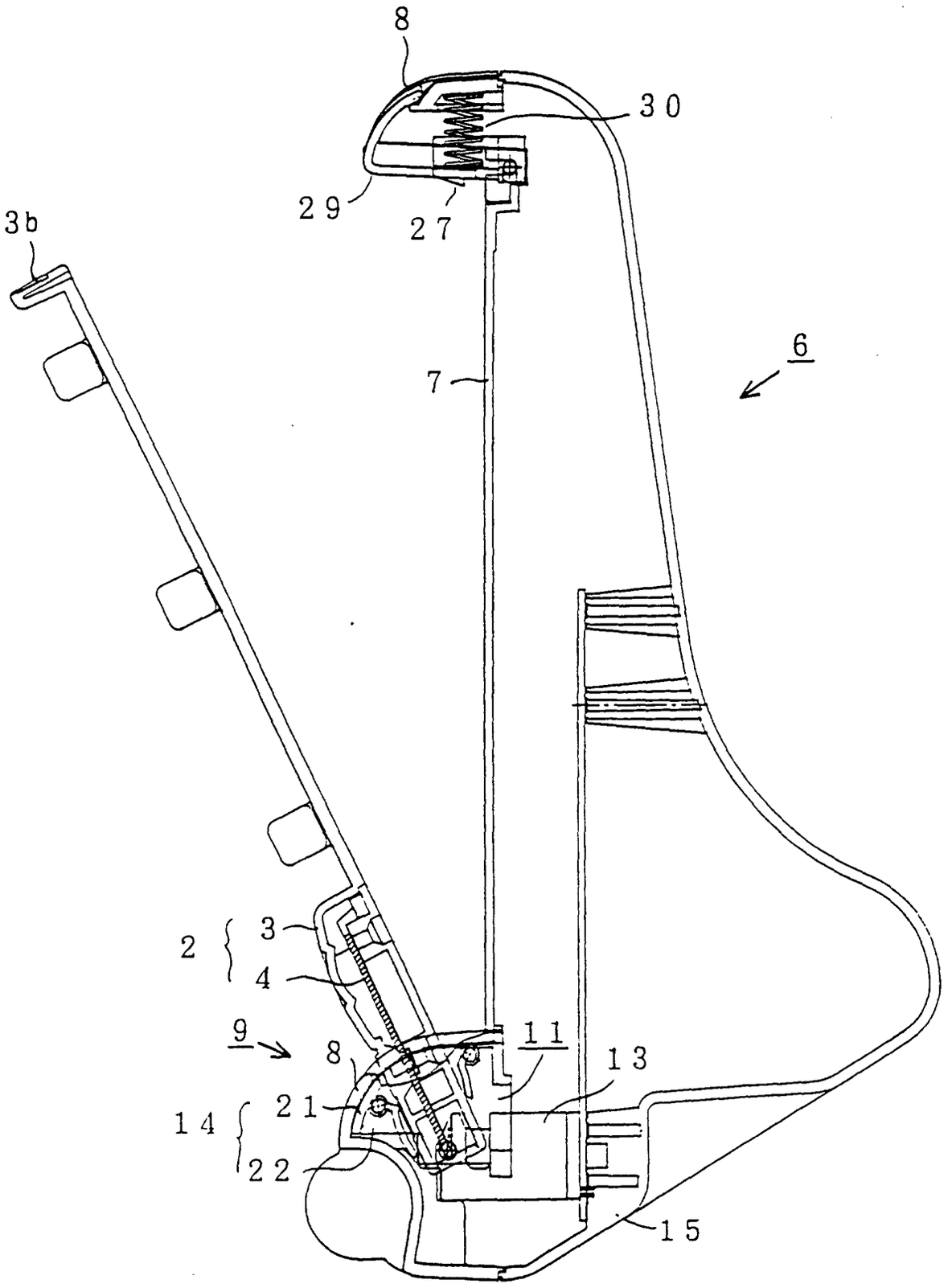


FIG.2

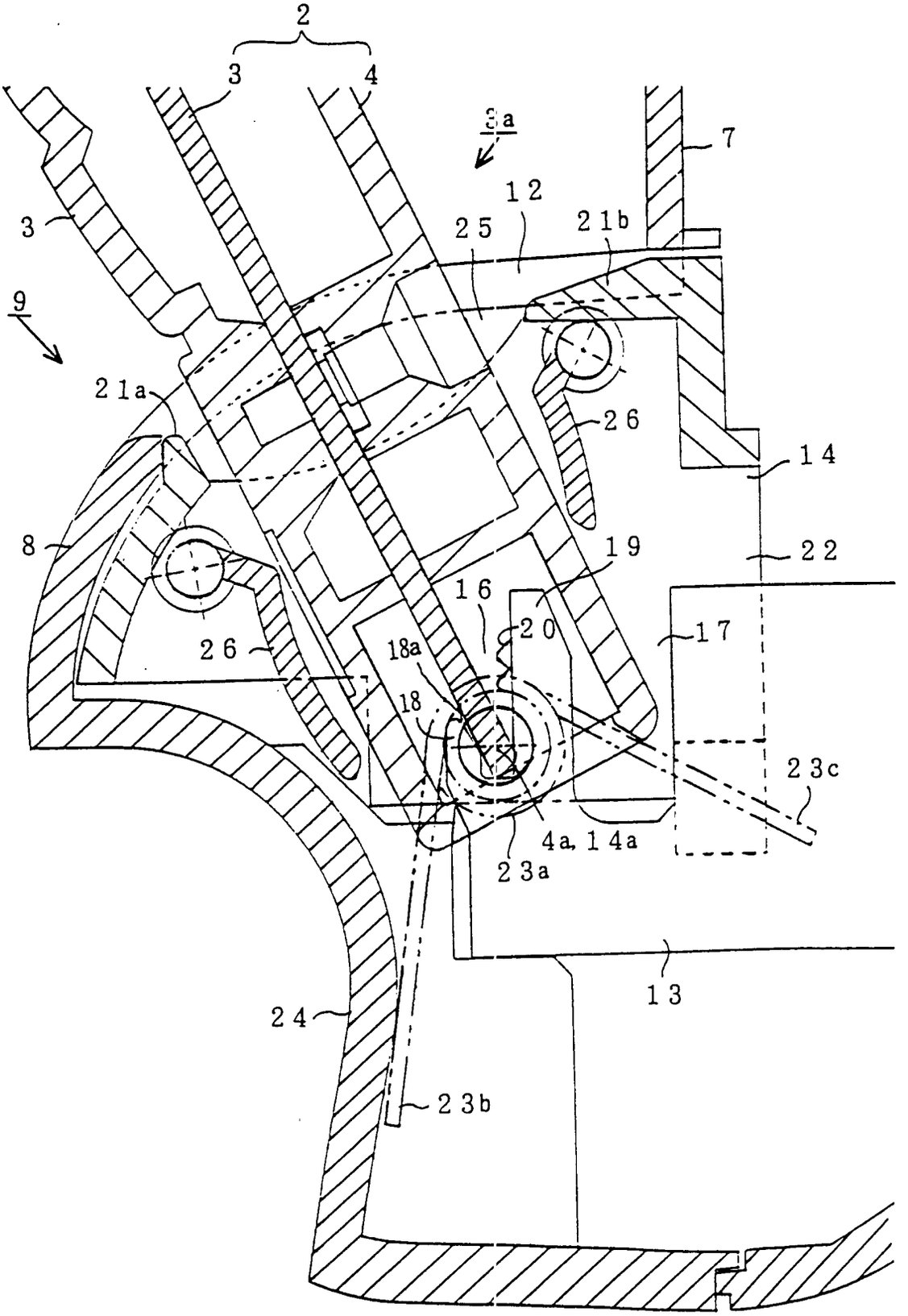

2
3
4
3a
7
12
3
25
21b
9
21a
26
14
8
19
22
16
20
17
26
18a
18
23c
4a, 14a
23a
13
24
23b

FIG.3

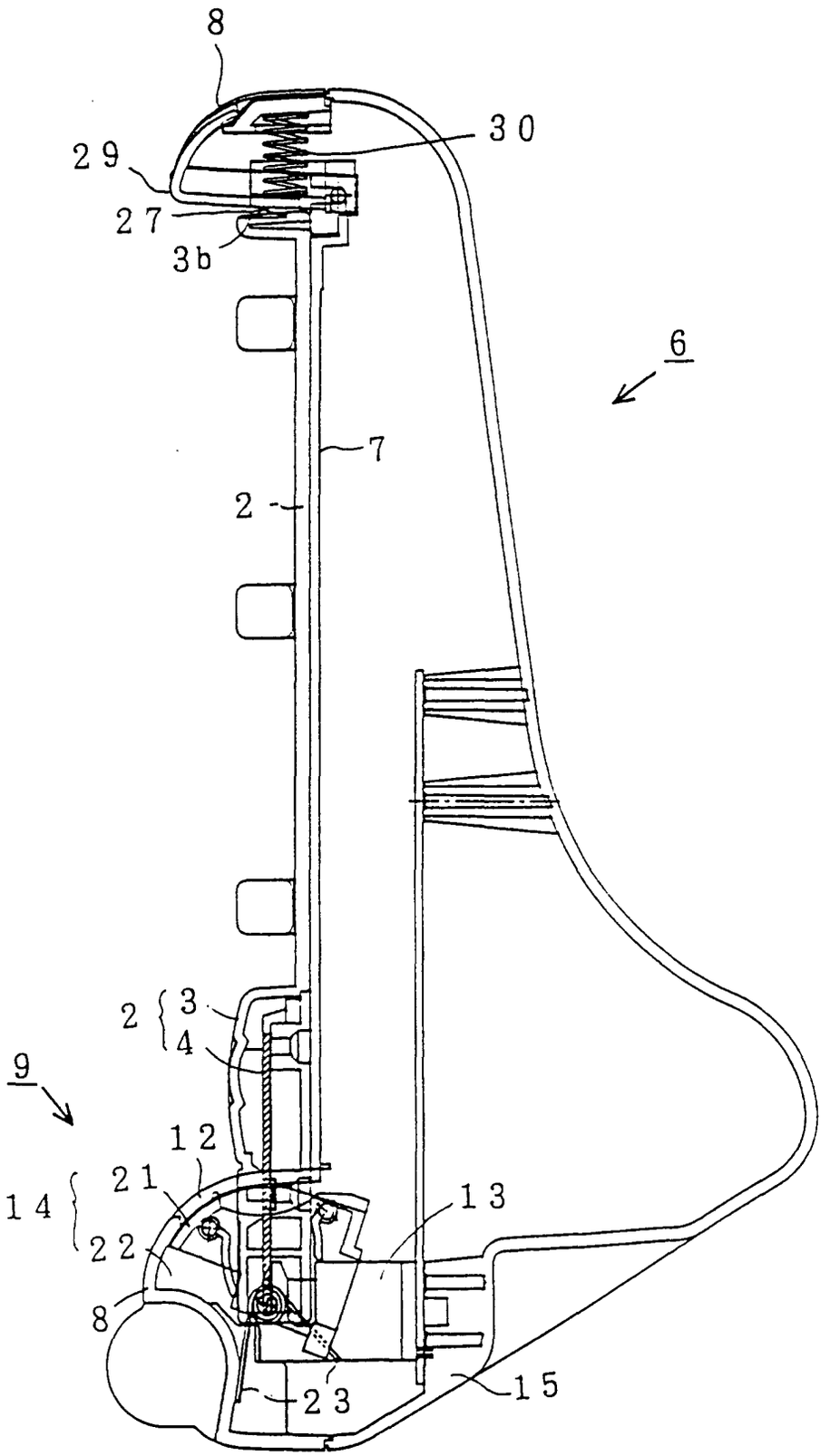
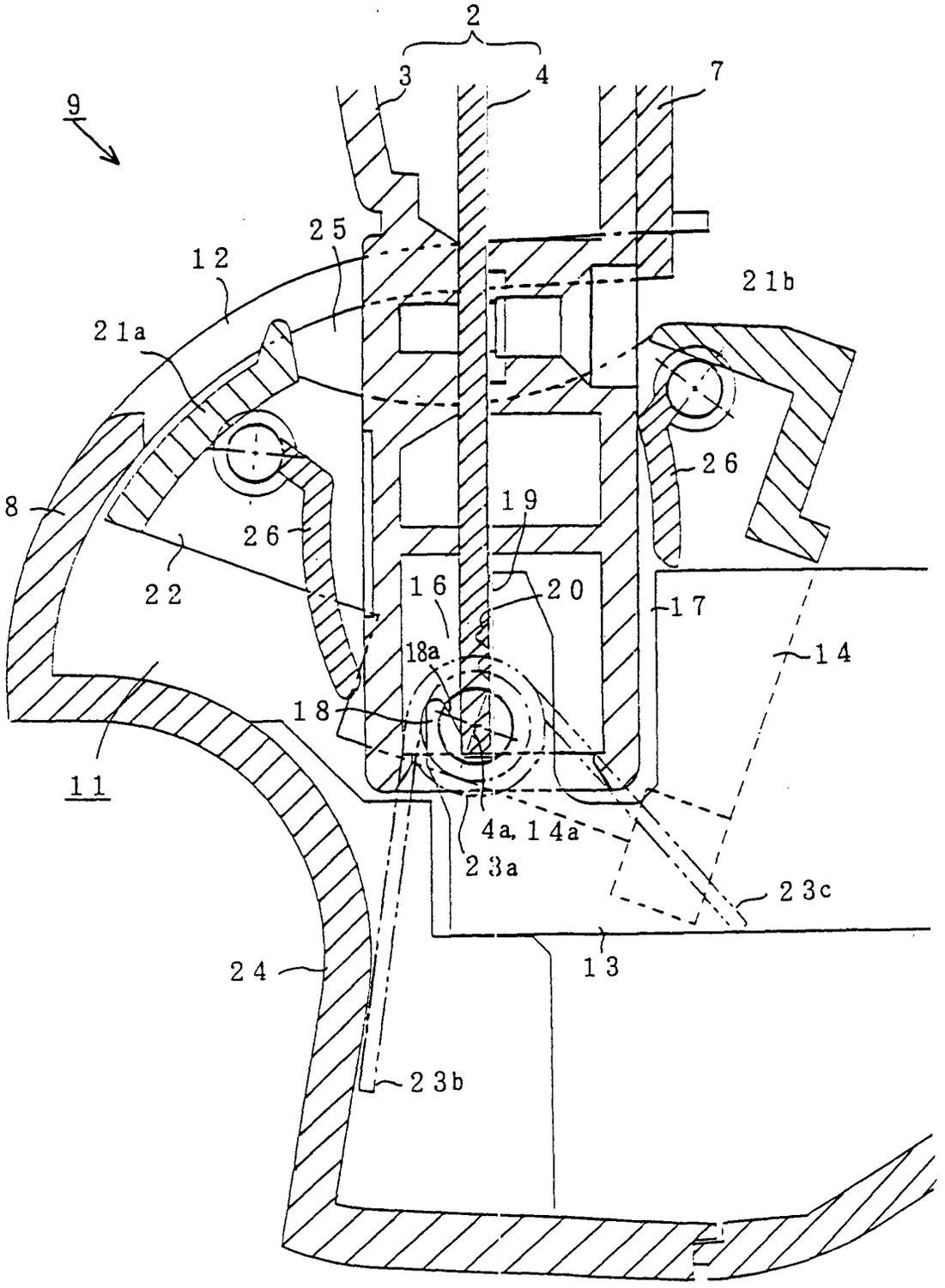


FIG.4


2
3
4
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21b
21a
26
8
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16
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14
18a
18
11
4a, 14a
23a
23c
24
13
23b

FIG.5

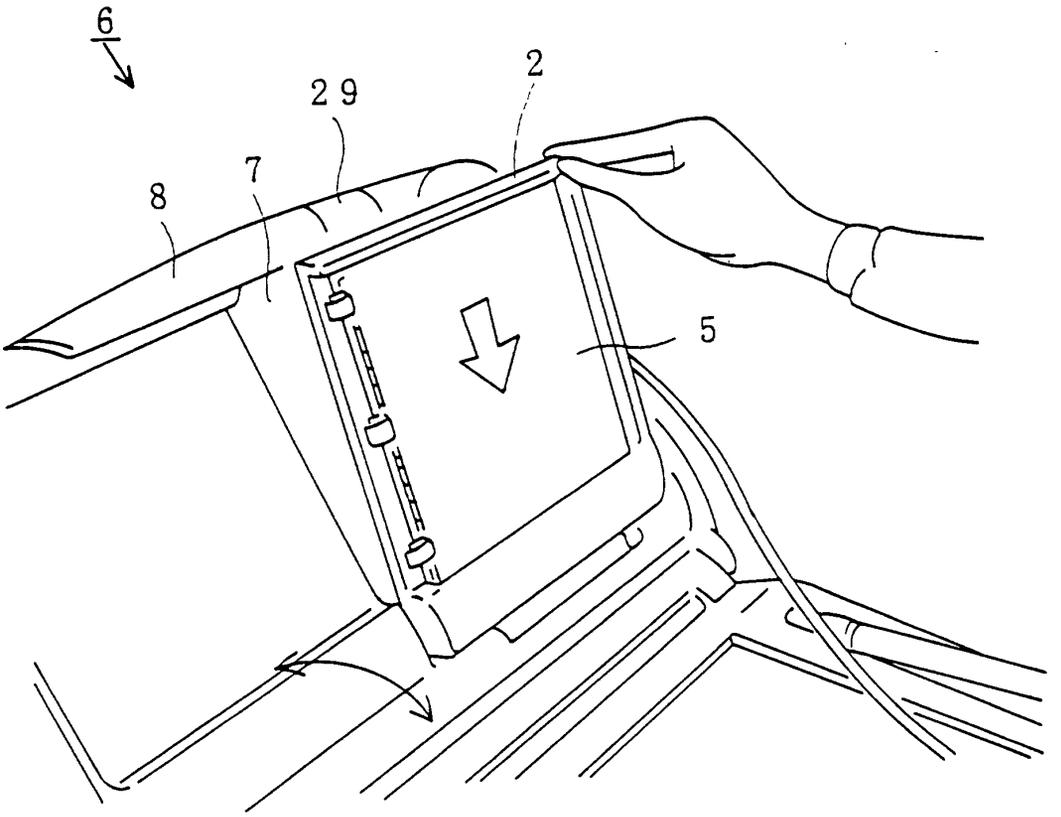

FIG.6

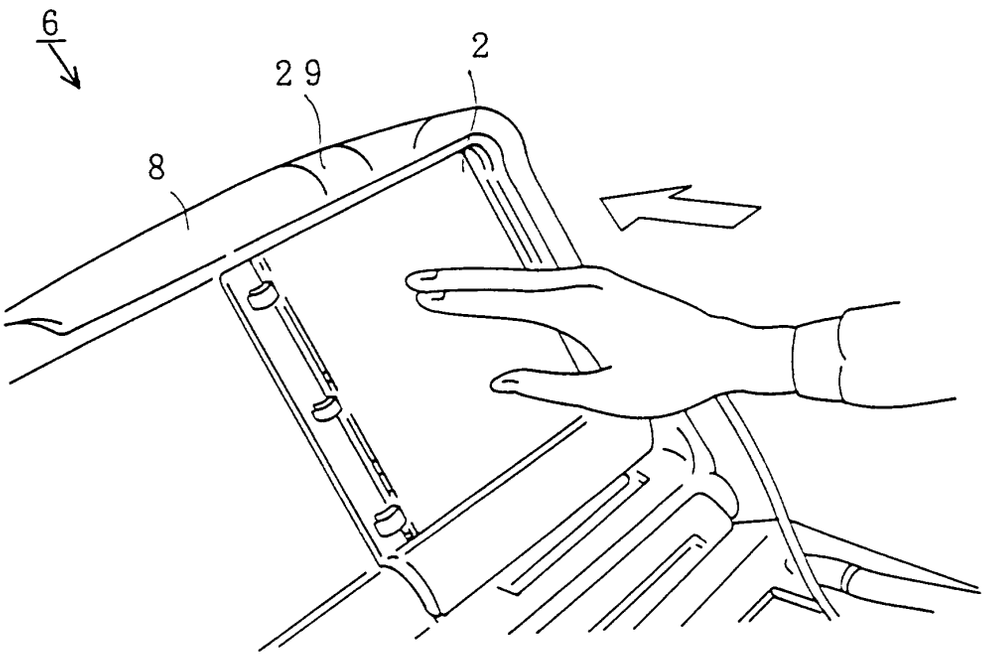

FIG.7

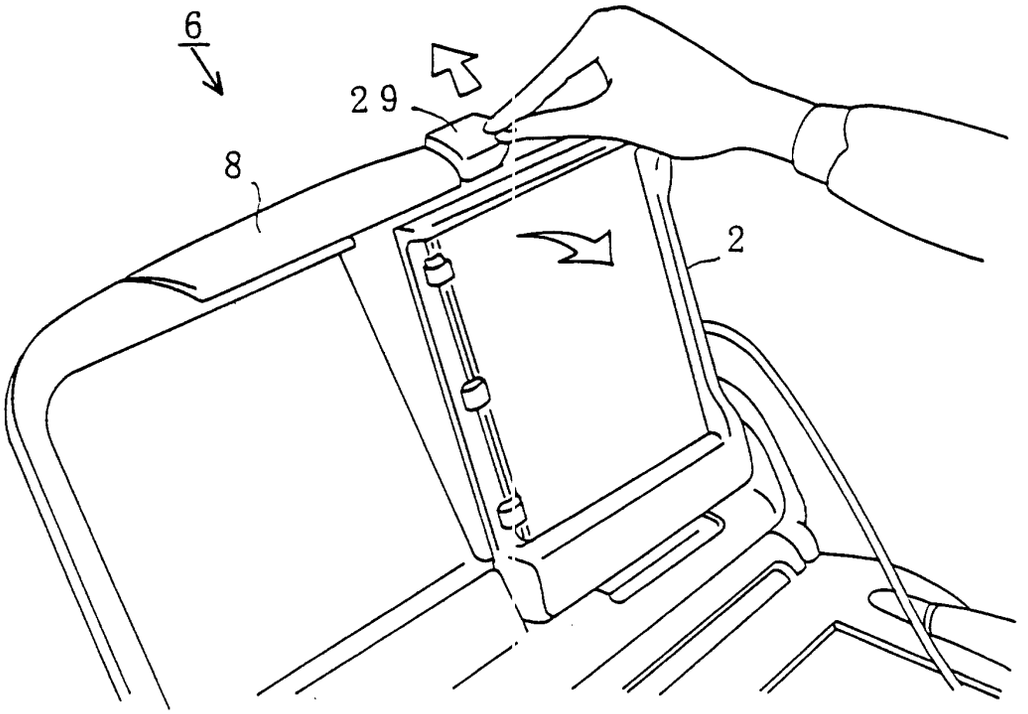

FIG.8

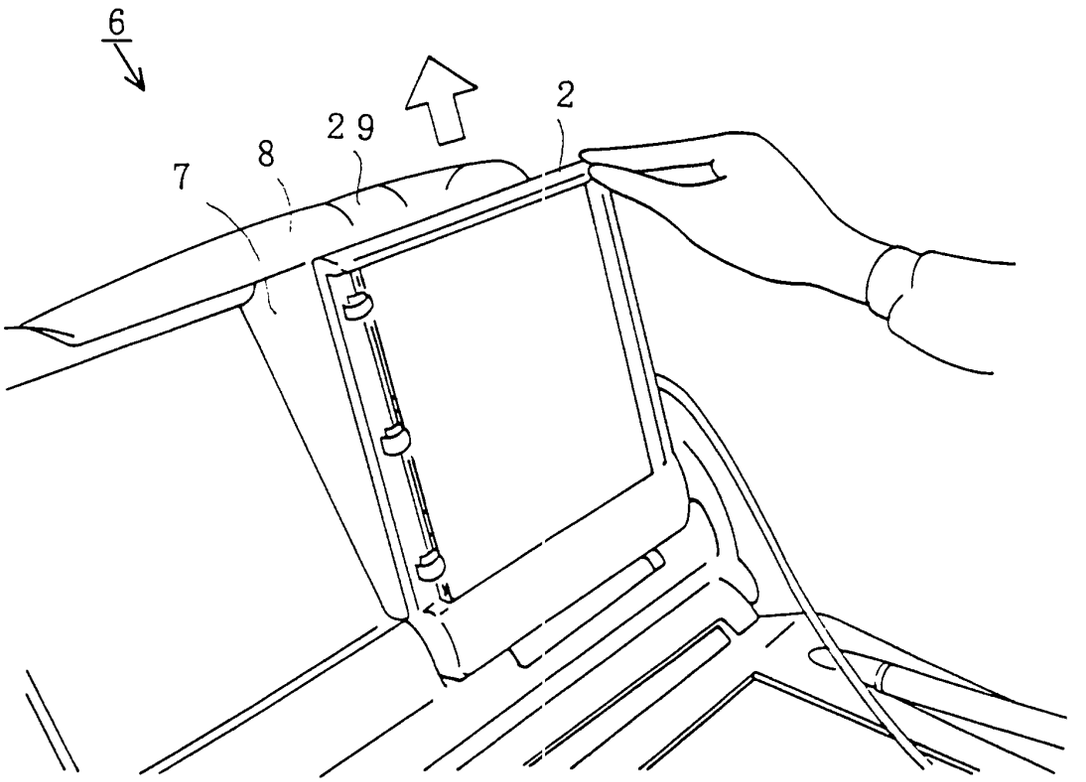

FIG.9