Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).
The present invention relates to a seat base sliding device applied to a seat of a heavy machinery such as a loader, an excavator, or the like, and more particularly, to a seat base sliding device capable of preventing a cabin from interfering with control stands disposed at both left and right sides of a seat at the time of assembling the cabin or control levers at both left and right sides from interfering with a corresponding thigh of a driver at the time of adjusting the control levers laterally after assembling the cabin.

Background Art

In general, a loader is widely used to perform an excavating operation for excavating soil, sand, and the like, a transporting operation for transporting the excavated soil and sand, a loading and unloading operation for loading or unloading the transported soil and sand to or from a truck, a road leveling operation, a snow-removing operation, a towing operation, and the like in construction sites.

The loader is configured in a structure including a boom installed at the front side of a vehicle and operated by a boom cylinder and a bucket rotatably fixed to the front end of the boom and operated by a bucket cylinder. An excavator performs various operations such as excavation, earth leveling, earth trampling, lifting of a heavy object, and the like. A working machine of the excavator is constituted by a boom, an arm, and a bucket and an operation of the excavator is performed by controlling the working machine constituted by the boom, arm, and bucket through each corresponding hydraulic cylinder.

FIG. 1 is a schematic perspective view showing a state in which a cabin is assembled to a seat device of an excavator in the related art.

The seat device 1 in the related art includes a suspension assembly 2 mounted on a floor (not shown) of a vehicle body, a seat base 3 installed in the top of the suspension assembly 2, and a seat 4 fixed to the top of the seat base 3.

Herein, control stands 5 are provided at both left and right sides of the seat base 3 and each control stand 5 includes a control lever 6.

Since the seat base 3 of the seat device 1 in the related art is fixed at an initial mounting position, inconvenience in which interference between each control stand 5 and a thigh of a driver occurs is accompanied at the time of controlling the control lever 6 on each control stand 5 from the left side to the right side after assembling.

Meanwhile, as shown in FIG. 1, the cabin 7 (alternatively, an operating room structure) is assembled down from the top to the bottom around the seat device 1 configured as above.

Disclosure

Technical Problem

Therefore, the present invention is contrived to solve the above-mentioned problems. An object of the present invention is to provide a seat base sliding device capable of preventing a control stand from being damaged by a cabin at the time of assembling the cabin around a seat device.

Another object of the present invention is to provide a seat base sliding device capable of preventing interference between a control lever and a thigh of a driver at the time when a driver controls the control lever after assembling the cabin.

Technical Solution

In order to achieve the objects, the present invention provides a seat base sliding device comprising the features of claim 1.

Further, the present invention further provides the following detailed exemplary embodiments in regards to the exemplary embodiment of the present invention.

According to the exemplary embodiment of the present invention, each adjustment unit may include the seat base having a through hole, the sliding plate having a slot extending laterally, and an adjustment member penetrating the slot of the sliding plate to fit in the through hole of the seat base, and the adjustment member may press at least one of the seat base and the sliding plate and is selectively fixed thereto to selectively maintain an interpressing state of the seat base and the sliding plate.

According to the exemplary embodiment of the present invention, the seat base sliding device may include: a screw section formed at one side of each adjustment member; a nut fixed to a lower part of the screw section; and a cap nut further coupled with the screw section and the nut are coupled with each other to set an opening limit of the adjustment member.

According to the exemplary embodiment of the present invention, the sliding plate may include a hori-
The present invention enables each control stand to move to the inside of a seat device through a sliding unit of the seat device to thereby prevent a cabin from knocking against both control stands of the seat device at the time of assembling the cabin around the seat device.

Further, the present invention enables each control stand to move to a corresponding inner wall of the cabin through the sliding unit of the seat device to thereby prevent interference between the corresponding control stand and a thigh of a driver at the time of operating a control lever of each control stand from the left side to the right side after assembling.

Advantageous Effects

The present invention enables each control stand to move to the inside of a seat device through a sliding unit of the seat device to thereby prevent a cabin from knocking against both control stands of the seat device at the time of assembling the cabin around the seat device.

Description of Drawings

FIG. 1 is a schematic perspective view showing a state in which a cabin is assembled to a seat device of an excavator in the related art.

FIG. 2 is a schematic perspective view showing a seat base sliding device according to the present invention.

FIG. 3 is a schematic exploded perspective view showing a seat base sliding device according to the present invention.

FIG. 4 is a schematic front view showing a seat base sliding device according to the present invention.

FIG. 5 is a schematic enlarged diagram showing an adjustment unit of a seat base sliding device according to the present invention.

FIG. 6 is a schematic use state diagram of a seat base sliding device according to the present invention.

Best Mode

Hereinafter, an exemplary embodiment of a seat base sliding device according to the present invention will be described below with reference to FIGS. 2 to 6.

FIG. 2 is a schematic perspective view showing a seat base sliding device according to the present invention and FIG. 3 is a schematic exploded perspective view showing a seat base sliding device according to the present invention. Further, FIG. 4 is a schematic front view showing a seat base sliding device according to the present invention and FIG. 5 is a schematic enlarged diagram showing an adjustment unit of a seat base sliding device according to the present invention.

In the following description of the present invention, the same reference numerals as those in the related art will refer to the same components as those in the related art for easy understanding.

The seat base sliding device 10 according to the present invention may include a seat base 11 in which a suspension assembly (not shown) installed on a floor (not shown) of a vehicle body is fixed to a lower part thereof and a seat (not shown) is installed in an upper part thereof, and a sliding plate 14 including a horizontal section 12 fixed to each of both left and right sides of the seat base 11 through at least one adjustment unit 20 and an inclined section 13 slantly connected with the horizontal section 12 and each one side connected with a control stand (not shown) through a fixation unit 15, and being slidable inwards and outwards in a lateral direction of the seat base 11, as shown in FIGS. 2 and 3.

As known through the above configuration, in the seat base sliding device 10 according to the present invention, two or four adjustment unit 20 may be installed between the seat base 11 and the sliding plate 14 and the figures (FIGS. 2 and 3) of the present invention show a state in which four adjustment unit 20 is installed between the seat base 11 and the sliding plate 14. When the number of the adjustment unit 20 is two, a guide section (not shown) is preferably provided integrally or separately at both sides of the seat base 11 to guide the sliding plate 14 inwards and outwards in the lateral direction of the seat base 11. In a structure in which the guide section is formed integrally with the seat base 11, the guide section may be bent such that a corresponding side portion of the seat base 11 configures a guide rail.

Meanwhile, the "horizontal section 12" of the sliding plate 14 may have a shape so that the horizontal section 12 is slidable in the lateral direction of the seat base 11 and the "inclined section 13" may be slantly connected to the horizontal section 12 so that an installation space of the control stand can be maximally ensured between an inner wall of a cabin (not shown) and the inclined section. In the exemplary embodiment, as one example, the inclined section 13 has a shape extending substantially in a vertical direction to the horizontal section. It is preferable that the inclined section 13 is formed integrally with the horizontal section to improve processing efficiency thereof.

By the horizontal section 12 and the inclined section 13, utilizing optimal space can be expected when connecting the control stand 5 to the seat base 11.

Further, the seat base sliding device according to the present invention may be further limited to the following detailed exemplary embodiments in addition to the above-mentioned basic configuration.

Each adjustment unit 20 may include the seat base 11 having a through-hole 11a, the horizontal section 12 of the sliding plate 14 having a slot 12a extending in the lateral direction, an adjustment member 21 including a screw section 21a fitted through the slot 12a of the horizontal section 12 and the through-hole 11a of the
A seat base sliding device, comprising:

1. A seat base 11 including a lower part adapted to be fixed to a floor of a vehicle body and an upper part adapted to be fixed to a seat (4), sliding plates 14 located on left and right sides of the seat base 11 (11a) and slidably according to a lateral direction of the seat base (11) wherein a control stand (5) is fixed to one side of each of the sliding plates (14); and at least one adjustment unit (20) selectively fixing the sliding plates (14) to the seat base (11) at a certain position determined by sliding movement of the sliding plates (14).

2. The seat base sliding device according to claim 1, wherein each adjustment unit (20) includes a through hole (11a) formed in the seat base (11), a slot (12a) extending laterally formed in each of the sliding plates (14), and adjustment members (21) each of which is penetrating the slot (12a) of each of the sliding plates (14) to fit in the through hole (11a) of the seat base (11a), wherein the adjustment members (21) selectively press at least one of the seat base (11) and the sliding plates (14) and then are fixed thereto to selectively maintain interpressing state of the seat base (11) and the sliding plates (14).

3. The seat base sliding device according to claim 2, wherein the at least one adjustment unit (20) comprises:

   a screw section (21a) formed at one side of each of the adjustment members (21);
   a nut (22) fixed to a lower part of the through hole (11a) and coupled with the screw section (21a); and
   a cap nut (24) further coupled with the end of the screw section (21a) penetrating the nut (22) when the screw section (21a) and the nut (22) are coupled with each other to set an opening limit of the adjustment members (21).

4. The seat base sliding device according to any one of claims 1 to 3, wherein: the sliding plates (14) include a horizontal section (12) fixed to each of both left and right sides of the seat base 11 through the at least one adjustment unit (20) and an inclined section (13) slantly connected with the horizontal section (12), and wherein the control stand (5) is connected to one side of the inclined section (13).

A wash 23 may be further fitted in the screw section 12a between the head portion 21b of each adjustment member 21 and the horizontal section 12 of the sliding plate 14 to increase adhesive strength between the horizontal section 12 and the seat base 11 (see FIGS. 4 and 5).

A cap nut 24 may be further provided at a lower end of the screw section 21a of each adjustment member 21 so as to set an opening limit of the adjustment member 21 (see FIGS. 4 and 5).

Meanwhile, each fixation unit 15 may be configured as various types of known unit that can fix the corresponding control stand (not shown) to each inclined section 13 of the sliding plate 14.

An operation of the seat base sliding device configured as described above will be described below with reference to FIGS. 2 to 6.

First, as shown in FIG. 6, when the cabin 7 is assembled around the seat base sliding device 10, the adjustment member 21 of the adjustment unit 20 provided at each of both sides of the seat base 11 is turned in a releasing direction and thereafter, the corresponding sliding plate 14 moves to the inside of the seat base 11.

In this case, the control stand 5 provided at the side of each sliding plate 14 also moves toward the center of the seat base 11 along the corresponding sliding plate. Further, in the case of the exemplary embodiment in which the cap nut 24 is further adopted at the lower end of the screw section 21a of the adjustment member 21, releasing of the adjustment member 21 is limited to a predetermined opening limit by the cap nut 24 (see FIGS. 2 to 5).

Thereafter, the cabin 7 moves down from the top to the bottom around the seat base sliding device 10 and is fixed to the floor (not shown) of the vehicle body with fasteners such as a screw, a bolt, and the like, and thereafter, each sliding plate 14 moves to the corresponding inner wall of the cabin 7 (see FIG. 6).

Subsequently, the adjustment member 21 of each adjustment unit 20 is turned in a fastening direction to fix the corresponding sliding plate 14 to the seat base 11. In this case, the control stand 5 fixed to the side of each sliding plate 14 also moves to the inner wall of the cabin 7 together with the corresponding sliding plate, such that a gap between the control stand 5 is widened. As a result, a space between the control lever 6 of each of sliding 14 and a thigh of a driver can be significantly secured (see FIG. 6).

The above-mentioned present invention is not limited to the above-mentioned exemplary embodiment and the accompanying drawings and it is apparent to those skilled in the art that simple substitutions, modifications, and changes can be made within the scope of the appended claims.
Patentansprüche

1. Sitzbasis-Gleitvorrichtung, umfassend:

   eine Sitzbasis (11), die einen unteren Teil um-
   fasst, der dafür ausgelegt ist, an einem Boden
   einer Fahrzeugkarosserie befestigt zu werden,
   und einen oberen Teil enthält, der dafür ausge-
   legt ist, an einem Sitz (4) befestigt zu werden,
   Gleitplatten (14), die sich auf einer linken und
   einer rechten Seite der Sitzbasis (11) befinden
   und gemäß einer seitlichen Richtung der Sitz-
   basis (11) gleiten können, wobei eine Steuer-
   säule (5) an einer Seite einer jeden der Gleit-
   platten (14) befestigt ist; und
   mindestens eine Verstelleinheit (20), welche die
   Gleitplatten (14) selektiv an der Sitzbasis (11)
   in einer bestimmten Position fixiert, die durch
   eine Gleitbewegung der Gleitplatten (14) be-
   stimmt wird.

2. Sitzbasis-Gleitvorrichtung nach Anspruch 1, wobei
   jede Verstelleinheit (20) umfasst: ein Durchgangs-
   loch (11a), das in der Sitzbasis (11) ausgebildet ist,
   einen Schlitz (12a), der sich seitlich erstreckt und in
   jeder der Gleitplatten (14) ausgebildet ist, und Ver-
   stellelemente (21), von denen jedes den Schlitz
   (12a) einer jeden der Gleitplatten (14) durchdringt,
   um in das Durchgangsloch (11a) der Sitzbasis (11a)
   zu passen,
   wobei die Verstellelemente (21) selektiv gegen die
   Sitzbasis (11) und/oder die Gleitplatten (14) drücken
   und dann daran fixiert werden, um selektiv einen Zu-
   stand beizubehalten, in dem die Sitzbasis (11) und
   die Gleitplatten (14) gegeneinander drücken.

3. Sitzbasis-Gleitvorrichtung nach Anspruch 2, wobei
   die mindestens eine Verstelleinheit (20) Folgendes
   umfasst:

   eine Schraubensektion (21a), die auf einer Seite
   eines jeden der Verstellelemente (21) ausgebil-
   det ist;
   eine Mutter (22), die an einem unteren Teil des
   Durchgangslochs (11a) fixiert ist und mit der
   Schraubensektion (21a) gekoppelt ist; und
   eine Hutmutter (24), die des Weiteren mit dem
   Ende der Schraubensektion (21a), die in die
   Mutter (22) eindringt, gekoppelt wird, wenn die
   Schraubensektion (21a) und die Mutter (22) mit-
   einander gekoppelt werden, um eine Öffnungs-
   grenze der Verstellelemente (21) einzustellen.

4. Sitzbasis-Gleitvorrichtung nach einem der Ansprü-
   che 1 bis 3, wobei die Gleitplatten (14) eine horizon-
   tale Sektion (12) umfassen, die sowohl an einer lin-
   ken als auch an einer rechten Seite der Sitzbasis
   (11) durch die mindestens eine Verstelleinheit (20)
   fixiert ist, sowie eine geneigte Sektion (13) umfas-
   sen, die schräg mit der horizontalen Sektion (12) ver-
   bunden ist, und wobei die Steuersäule (5) mit einer
   Seite der geneigten Sektion (13) verbunden ist.

Revendications

1. Dispositif coulissant de base de siège, comprenant :

   une base de siège (11) comportant une partie
   inférieure conçue pour être fixée à un plancher
   de carrosserie de véhicule et une partie supé-
   rieure conçue pour être fixée à un siège (4),
   des plaques coulissantes (14) situées sur des
   côtés gauche et droit de la base de siège (11)
   et pouvant coulisser selon une direction latérale
   de la base de siège (11), dans lequel un support
   de commande (5) est fixé à un côté de chacune
   des plaques coulissantes (14) ; et
   au moins une unité de réglage (20) fixant de
   manière sélective les plaques coulissantes (14)
   sur la base de siège (11) à une certaine position
   par un mouvement coulissant des plaques cou-
   lissantes (14).

2. Dispositif coulissant de base de siège selon la re-
   vendication 1, dans lequel chaque unité de réglage
   (20) comporte un trou traversant (11a) formé dans
   la base de siège (11), une fente (12a) s’étendant
   latéralement, formée dans chacune des plaques
   coulissantes (14), et des éléments de réglage (21)
   dont chacun pénètre dans la fente (12a) de chacune
   des plaques coulissantes (14) pour s’insérer dans le
   trou traversant (11a) de la base de siège (11a),
   dans lequel les éléments de réglage (21) compri-
   ment de manière sélective la base de siège (11a) et
   ou les plaques coulissantes (14), puis lui et/ou leur sont
   fixés pour maintenir de manière sélective un état de
   compression mutuelle de la base de siège (11) et
   des plaques coulissantes (14).

3. Dispositif coulissant de base de siège selon la re-
   vendication 2, dans lequel l’au moins une unité de
   commande (20) comprend :

   une section filetée (21a) formée d’un côté de
   chacun des éléments de réglage (21) ;
   un écrou (22) fixé à une partie inférieure du trou
   traversant (11a) et accouplé à la section filetée
   (21a) ; et
   un écrou borgne (24) accouplé en outre à l’ex-
   trémité de la section filetée (21a) pénétrant dans
   l’écrou (22) lorsque la section filetée (21a) et
   l’écrou (22) sont accouplés l’un à l’autre pour
   définir une limite d’ouverture des éléments de
   réglage (21).
4. Dispositif coulissant de base de siège selon l'une quelconque des revendications 1 à 3, dans lequel : les plaques coulissantes (14) comportent une section horizontale (12) fixée à chacun des deux côtés gauche et droit de la base de siège (11) au moyen de l’au moins une.unité de réglage (20) et une section inclinée (13) reliée en biais à la section horizontale (12), et dans lequel le support de commande (5) est relié à un côté de la section inclinée (13).