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(54) **A WRITING TABLE HAVING ELBOW SUPPORTING PLATE CONNECTED WITH DRAWER**

(57) This invention involves a kind of writing desk whose drawer connects with the arms support board. There are set up with the big drawers that can be pushed and pulled, and there are set up with the arms support boards articulated with the side of long horizontal edge place on the top end of internal plate surface of drawer panel of big drawer; or there are set up with the small drawers that can be pushed and pulled at the left, right side of underside of desk panel, there are set up with the left arms support board and the right arms support board at the top end of internal plate surface of opposite drawer side plate of left, right small drawers; the left, right arms support boards are opposite by the internal concave form arc shaped side and are articulated each other. Thus, the turnover of the arms support board does not occupy the lower space of drawer, and at the same time the user can support on the arms support board or movable backing plate with pairs of elbow and forearm at one desk to operate the computer keyboard or to turn over, write the file conveniently; Furthermore, it can make the arms support board be adapt to the need of horizontal desk panel and slope desk panel, and the structure is simple and it is easy to use at the same time.

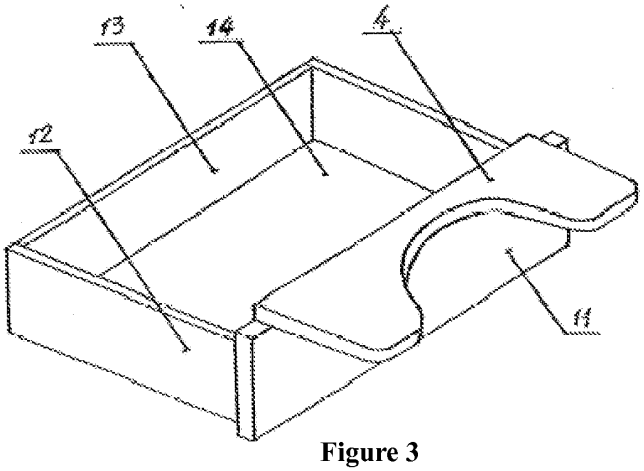

Figure 3

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Description

[0001] This invention involves a kind of writing desk whose drawer connects with the arms support board. There are set up with the big drawers that can be pushed and pulled, and there are set up with the arms support boards articulated with the side of long horizontal edge place on the top end of internal plate surface of drawer panel of big drawer; or there are set up with the small drawers that can be pushed and pulled at the left, right side of underside of desk panel, there are set up with the left arms support board and the right arms support board at the top end of internal plate surface of opposite drawer side plate of left, right small drawers; the left, right arms support boards are opposite by the internal concave form arc shaped side and are articulated each other. Thus, the turnover of the arms support board does not occupy the lower space of drawer, and at the same time the user can support on the arms support board or movable backing plate with pairs of elbow and forearm at one desk to operate the computer keyboard or to turn over, write the file conveniently; Furthermore, it can make the arms support board be adapt to the need of horizontal desk panel and slope desk panel, and the structure is simple and it is easy to use at the same time.

Technical field

[0002] This invention involves a kind of writing desk whose drawer connects with the arms support board. To be specific, it is mainly suitable for the writing desk in office and family.

Background technology

[0003] As is well known, for the person who works bending over one's desk on the traditional writing desk for a long time, on one hand because a pair of elbows and forearms are supported on the rectangle desk panel to read and write, it must adopt the sitting posture of excessively leaning forward, which can cause the hunchback and eye myopia; on the other hand it makes the muscles of shoulder back, arm and wrist be in the tension condition for a long time because of hanging the elbow to operate the keyboard and mouse of the computer, thus causing the shoulder periarthritis, cervical spondylosis etc.

[0004] In recent years, there has appeared the desk structure that there extends out the arms support board from the edge of desk panel close to one side of human body. The arms support board is that there are set up with one internal concave arc shaped gap slightly wider than the waist width of human body in the middle of traditional rectangle desktop. Both sides of internal concave shape protrude outwards oppositely. It is call as the arms support board. When the users carry on the desktop homework, their upper body above the waist enters the groove part by the desk, and the pair of elbows and forearms are supported on the arms support board of both sides. The arms support board is helpful for the users to correct the sitting posture, to decrease the fatigue, and makes the persons feel comfortable, and is beneficial to persons' health. For example, patent of China, ZL89218825.1, ZL92200155.3, ZL97228199.1, they adopt the fixed type arms support board, simple structure, reliable, however, the occupied space of desktop increases, and it is inconvenient for the users to come in and go out; For example, patent of China, ZL99213798.5, ZL03239639.2, for the adopted turnover-downward foldable arms support board, the occupied space of desktop reduces, and it is convenient for the users to come in and go out. However, while turning over the arms support board, it needs to occupy the lower space of desktop. Thus it has limited the utilization of the lower space of the desk panel. For example : Place the drawer, the cupboard and the host case of computer, etc., in addition, it needs to add the supporting structure for the arms support board, and by doing so it can maintain the dependability of support of arms support board. In addition, because the keyboard of the computer is higher than the desktop, the wrist will not operate the keyboard unless upwarping it. The users can't support on the arms support board with a pair of elbows and forearms and operate the keyboard of the computer and turn over, write the files conveniently at one desk,.

Invention content

[0005] The purpose of this invention is to improve the existing writing desk and to offer one a kind of writing desk whose drawer connects with the arms support board. Connect the arms support board to the top end of internal plate surface of opposite drawer side plate of left, right small drawers of writing desk with the hinge, or connect the left, right arms support board to the top end of internal plate surface of opposite drawer side plate of left, right small drawers of writing desk with the hinge. And it can turn over upwards by 180° and is supported on the top surface of drawer panel or drawer side plate. Through utilizing the function that the big drawers or two small drawers can be pushed and pulled under the desk panel of the writing desk, it can make the arms support board turn over to the usage status or hiding status after the big drawers or two small drawers are pulled out; And utilize the movable backing board connected to the upper surface of the arms support board to make a pair of elbow and forearm support on the arms support board or the movable backing board, and it is convenient not only to turn over and write the files but also to operate the keyboards and mice on the desk; It can also make the arms support board be inclined forward, and it can utilize the movable wedge-shaped backing board on the arms support board insert into between the arms support board and the inclined top surface of drawer panel to make the arms support board be in the horizontal status; In addition, it can also replace the drawer with the push-pull

board. There can connect the arms support board with the hinge on the push-pull board.

Technological scheme adopted in this invention:

[0006] A kind of writing desk whose drawer connects with the arms support board, there are set up with the big drawers that can be pushed and pulled under the desk panel of writing desk. There are set up with the arms support boards articulated with the side of long horizontal edge on the top end of internal plate surface of drawer panel of big drawer. The arms support board turns over upward and is supported on the top end of the drawer panel, and the upper surface of arms support board and the described desk panel are at the same height.

[0007] A kind of writing desk whose drawer connects with the arms support board, there are set up with the small drawers that can be pushed and pulled at the left, right side of underside of desk panel of writing desk. There are set up with one piece of left arms support board and one piece of right arms support board at the top end of internal plate surface of opposite drawer side plate of left, right small drawers; the left, right arms support boards are opposite by the internal concave form arc shaped side and are articulated each other. The left arms support board and right arms support board turn over upward respectively and are supported on the top end of corresponding drawer side plate. And the upper surfaces of left, right arms support board and the described desk panel is at the same height.

[0008] The upper surface of the described arms support board can be connected with one piece of movable backing board of shape same as the arms support board with the removable connecting parts; Or the upper surface of movable backing board and the described desk panel is at the same height.

[0009] The top end of the described drawer panel is the inclined top surface of front end inclining downward. There are also set up with the one wedge-shaped block on the sliding guide at the rear of the described arms support board.

[0010] For the top end of internal plate surface of drawer panel of described big drawer it can use the hinge that can turn over by 180° to connect the lateral surface of long horizontal side place of arms support board.

[0011] The described arms support board is separated as one piece of left half arms support board and one piece of right half arms support board; and the long horizontal side of the arms support board is also divided into two sections and forms the concave groove shape together with the drawer panel.

[0012] There are connected with one waling piece of corresponding length on the plate surface of long horizontal side of described arms support board.

[0013] There are connected with one section of waling piece of corresponding length respectively on the plate surface of described two section of long horizontal side.

[0014] There are set up with one keyboard tray inside the two pieces of drawer side plate of the described big drawer.

[0015] The described big drawer is kind of push-pull board.

[0016] There is all the vertical side at the left side of the described left arms support board and at the right side of the described right arms support board.

[0017] It can use the hinge that can turn over by 180° to connect the vertical lateral surface of left, right arms support board at the top end of internal plate surface of opposite drawer side plate of described left, right small drawer.

[0018] There are connected with one piece of vertical slab billet respectively on the plate surface of vertical side place of described left, right arms support board.

[0019] The turnover of the arms support board of this invention does not occupy the lower space of drawer, and at the same time the user can support himself on the arms support board or movable backing plate with pairs of elbow and forearm at one desk to operate the computer keyboard or to turn over, write the file conveniently; Furthermore, it can make the arms support board be adapt to the need of horizontal desk panel and inclined desk panel, and the structure is simple and it is easy to use at the same time.

Explanation of attached figures

[0020]

Figure 1 : Local side section schematic diagram of the first embodiment of this invention.

Figure 2: Non-usage status schematic diagram for arms support board of the first embodiment of this invention.

Figure 3: Figure 2: Usage status schematic diagram for arms support board of the first embodiment of this invention.

Figure 4: Non-usage status schematic diagram for arms support board of the second embodiment of this invention.

Figure 5: Usage status schematic diagram for arms support board of the second embodiment of this invention.

Figure 6: Non-usage status schematic diagram for arms support board of the third embodiment of this invention.

Figure 7: Usage status schematic diagram for arms support board of the third embodiment of this invention.

Figure 8: Non-usage status schematic diagram for

arms support board of the fourth embodiment of this invention.

Figure 9: Usage status schematic diagram for arms support board of the fourth embodiment of this invention.

Figure 10: Non-usage status schematic diagram for arms support board of the fifth embodiment of this invention.

Figure 11: Usage status schematic diagram for arms support board of the fifth embodiment of this invention.

Figure 12: Local side section schematic diagram of the sixth embodiment of this invention.

Figure 13: Non-usage status schematic diagram for arms support board of the sixth embodiment of this invention.

Figure 14: Usage status schematic diagram for arms support board of the sixth embodiment of this invention.

Figure 15: Non-usage status schematic diagram for arms support board of the seventh embodiment of this invention.

Figure 16: Usage status schematic diagram for arms support board of the seventh embodiment of this invention.

Figure 17: Schematic diagram of status of computer keyboard of the eighth embodiment of this invention.

Figure 18: Schematic diagram of status of turning over and writing files of the eighth embodiment of this invention.

Figure 19: Horizontal schematic diagram of usage status for arms support board of the eighth embodiment of this invention.

Figure 20: Non-usage status schematic diagram for arms support board of the eighth embodiment of this invention.

Figure 21: Schematic diagram of status of operating the computer keyboard of the ninth embodiment of this invention.

Figure 22: Schematic diagram of status of turning over and writing files of the ninth embodiment of this invention.

Figure 23: Schematic diagram of inclining status of arms support board of the tenth embodiment of this invention.

Figure 24: Schematic diagram of horizontal status of arms support board of the tenth embodiment of this invention.

Figure 25: Local side sectional view when the arms support board of the tenth embodiment of this invention is not used.

Figure 26: Horizontal sectional view when the arms support board of the tenth embodiment of this invention is not used.

Figure 27: Schematic diagram of status of operating the computer keyboard of the eleventh embodiment of this invention.

Figure 28: Schematic diagram of status of turning over and writing files of the eleventh embodiment of this invention.

Figure 29: Side view schematic diagram of usage status for the arms support board, keyboard tray of the twelfth embodiment of this invention.

Figure 30: Top view schematic diagram of usage status for the arms support board, keyboard tray of the twelfth embodiment of this invention.

Figure 31: Schematic diagram of non-usage status for the keyboard tray of the twelfth embodiment of this invention.

Figure 32: Schematic diagram of usage status for the keyboard tray of the twelfth embodiment of this invention.

Figure 33: Upward view schematic diagram of the keyboard tray of the twelfth embodiment of this invention.

Figure 34: Front view schematic diagram of the keyboard tray of the twelfth embodiment of this invention.

Concrete execution mode

[0021] The first embodiment of this invention is made out of one big drawer 1, one supporting rack 2, one piece of desk panel 3 and one piece of arms support board 4, as shown in Fig. 1 ~ 3, among them:

[0022] The big drawer 1 is at the underside of desk panel 3 that is supported by the supporting rack 2 and it is in the face of the users of the sitting posture. And the big drawer1 is on the longitudinal guide (not shown in the figure) set up under the at desk panel 3, which can be

pushed and pulled backwards and forwards along the orientation face to the users of sitting posture; The big drawer 1 is made out of one drawer panel 11, two drawer side plate 12, one drawer back plate 13 and one drawer bottom plate 14. When provided for users to work, it can preserve or take out file, tool, etc. conveniently; the above mentioned belongs to the existing technology.

[0023] The arms support board 4 is made out of the left, right vertical side edge of the desk panel, the front edge of two short horizontal edges and the rear edge of one long horizontal edge, and arc-shaped edge of middle part being internal concave form. And the arms support board 4 is connected to the top end position of internal plate surface of drawer panel 11 of big drawer 1 with the hinge (common hinge, or flat plate hinge, or bending hinge) at the side of the long horizontal edge position; When the users do not work, the arms support board 4 is in the big drawer 1, and its upper plate surface and the top surface of drawer panel 11 are at the same horizontal plane. At this moment, two hinge surface of the hinge are combined together (i.e. its included angle close to 0°). When the users prepare to work, he pulls the big drawer 1 firstly, and opens the arms support board, namely turns over upward by 180° around the axial of the hinge. At this moment, one plate surface of the arms support board 4 is contacted with and is supported on the top surfaces of drawer panel 11. Two hinge surfaces of the hinge are totally opened (i.e. its included angle close to 180°). Then push in the big drawer 1 to the underside of the desk panel 3 until the arms support board connects together with the desk panel. At this moment, the arms support board and the desk panel is at the same height, or slightly higher than the desk panel. In order to keep the stability at the working position and to prevent the arms support board from disconnecting with the desk panel, it can add the positioning device among the arms support board, the big drawer and the writing desk, such as the inserted pin, positioning hook, the magnetism mass, the pressurize pit on the guide, etc. And then the users supports themselves by the pair of elbow and forearm on the arms support board 4. The produced pressure and turn-over moment are borne by the hinge and the top surface of drawer panel 11. Therefore, the supporting is stable and reliable; when the users stop working, he should turn over the arms support board 4 by 180° around the reverse direction above described to make it enter into the big drawer. Finally, push in the big drawer 1 at the underside of desk panel 3; it's evident that the turnover of the arms support board 4 does not occupy the lower space of the big drawer 1.

[0024] The second embodiment of this invention separates the arms support board from the left, right side of horizontal edge and appropriate to remove one section of middle part to form one piece of left half arms support board and one piece of right half arms support board. Their arc-shaped edge together with the drawer panel 11 form the concave groove part, as shown in Fig. 4, 5; Other structures are the same as first embodiment, and therefore no longer give unnecessary details repeatedly.

[0025] For the third embodiment of this invention, there are connected with one waling piece 5 of corresponding length on the desk panel of long horizontal edge of arms support board 4. Adjust the height difference between the desk panel 3 and the arms support board 4 with the thickness of this waling piece 5, as shown in Fig. 6, 7. It makes the desk panel 3 with the arms support board 4 form the suitable height difference in order to make the users' wrist feel comfortable; other structures are the same as first embodiment, and therefore no longer give unnecessary details repeatedly.

[0026] For the fourth embodiment of this invention, separate the arms support board 4 as left, right side and be appropriate to remove one section of middle part to form one piece of left half arms support board and one piece of right half arms support board. At this moment, one long horizontal edge of this arms support board 4 is also divided into two sections. There are connected with one section of waling piece 5 of corresponding length on the plate surfaces of two sections of long horizontal edge place respectively, as shown in Fig. 8, 9; Adjust the height difference between the desk panel 3 and the arms support board 4 with the thickness of this waling piece 5 to make the desk panel 3 and the arms support board 4 form the appropriate height difference in order to make the users' wrist feel comfortable; Other structures are the same as first embodiment, and therefore no longer give unnecessary details repeatedly.

[0027] For the fifth embodiment of this invention, there are set up with a pair of parallel guide 121 on the internal plate surface of two pieces of drawer side plate 12 of big drawer 1. There are set up with one keyboard tray 122 of mutual sliding fit on the guide 121, as shown in Fig. 10, 11. The keyboard and mice of computer can be placed on the keyboard tray 122 in order to operate the computer placed on the desk panel 3 (not shown in the figure); But when the users work, it is unnecessary to push in the big drawer 1 to the underside of the desk panel 3 to make the arms support board with the desk panel connect together; Other structures are the same as first embodiment, and therefore no longer give unnecessary details repeatedly.

[0028] The sixth embodiment of this invention is made out of two small drawers 1a, one supporting rack 2, one piece of desk panel 3 and two pieces of arms support boards 4a, 4b, as shown in Fig. 12 ~ 14, among them:

[0029] The two small drawers 1a is at the underside of desk panel 3 that is supported by the supporting rack 2 and it is at the left, right side of the users of the sitting posture. And the two small drawers 1a is on the longitudinal guide (not shown in the figure) set up under the desk panel 3, which can be pushed and pulled backwards and forwards along the both sides face to the users of sitting posture; The two small drawers 1a is made out of one drawer panel 11a, two drawer side plate 12a, one drawer back plate 13a and one drawer bottom plate 14a. When provided for users to work, it can preserve or take

out file, tool, etc. conveniently; the above mentioned belongs to the existing technology.

[0030] The left arms support boards 4a is formed by the left vertical side edge of the plate surface, the short horizontal edge of front edge and the long horizontal edge of rear edge, and the internal concave form arc-shaped edge of right edge. While the right arms support boards 4b is formed by the right vertical side edge of the plate surface, the short horizontal edge of front edge and the long horizontal edge of rear edge, and the internal concave form arc-shaped edge of left edge. The left arms support boards 4a and the right arms support boards 4b oppositely form a concave groove shape by their internal concave form arc-shaped edge. And connect to the top end of internal plate surface of opposite internal drawer side plate 12a of left, right small drawers 1a with the hinge (common hinge, or flat plate hinge, or bending hinge) on their vertical side surfaces respectively; When the users do not work, the left arms support board 4a is inside the left small drawer 1a and the right arms support board 4b is inside the right small drawer 1a. And their upper plate surface and the top surface of drawer side plate 12a are at the same horizontal plane. At this moment, two hinge surface of the hinge are combined together (i.e. its included angle close to 0°). When the users prepare to work, he should pull the two small drawers 1a open firstly, and turn over upward the left, right arms support board 4a, 4b by 180° around the axial of the hinge. At this moment, one plate surface of the left arms support board 4a and right arms support board 4b is contacted with and is supported on the top surfaces of the corresponding drawer side plate 12a. At this moment, two hinge surfaces of the hinge are totally opened (i.e. its included angle close to 180°). Then push in the small drawer 1a to the underside of the desk panel 3 until the arms support board connects together with the desk panel. At this moment, the arms support board and the desk panel is at the same height, or slightly higher than the desk panel. In order to keep the stability at the working position and to prevent the arms support board from disconnecting with the desk panel, it can add the positioning device among the arms support board, the small drawer and the writing desk, such as the inserted pin, the positioning hook, the magnetism mass, the pressurize pit on the guide, etc. And then the users support themselves by the pair of elbow and forearm on the left, right arms support board 4a, 4b. The produced pressure and turn-over moment are borne by the hinge and the top surface of drawer side plate 12a. Therefore, the supporting is stable and reliable; when the users stop working he should turn over the left, right arms support board 4a, 4b by 180° around the reverse direction above described to make it enter into the small drawer 1a. Finally, push in the small drawer 1a at the underside of desk panel 3; it's evident that the turnover of the left, right arms support board 4a, 4b does not occupy the lower space of the small drawer 1a.

[0031] For the seventh embodiment of this invention, there are respectively connected with one vertical plate slab 6 on the desk panel of vertical side edge of left arms support board 4a and right arms support board 4b, as shown in Fig. 15, 16. Adjust the height difference between the desk panel 3 and the left, right arms support board 4a, 4b with the thickness of this vertical plate slab 6 to make the desk panel 3 with the left, right arms support board 4a, 4b form the suitable height difference in order to make the users' wrist feel comfortable; other structures are the same as sixth embodiment, and therefore no longer give unnecessary details repeatedly.

[0032] The eighth embodiment of this invention is made out of one drawer 1c, one supporting rack 2c, one piece of desk panel 3c, and one piece of arms support boards 4c and one movable backing board 5c, as shown in Fig. 17~20, among them:

[0033] And the drawer 1c is on the longitudinal guide (not shown in the figure) set up under the desk panel 3c, which can be pushed and pulled backwards and forwards along the sides face to the users of sitting posture; The drawer 1c is made out of one drawer panel 11c, two drawer side plates, one drawer back plate and one drawer bottom plate. When provided for users to work, it can preserve or take out file, tool, etc. conveniently; the above mentioned belongs to the existing technology.

[0034] The arms support board 4c is formed by the left, right vertical side edge of the desk panel, the two separated short horizontal edges of front edge and one long horizontal edge of rear edge, and arc-shaped edge of middle part being internal concave form. And the arms support board 4c is connected to the top end position of internal plate surface of drawer panel 11c of drawer 1c with the hinge (common hinge, or flat plate hinge, or bending hinge) at the side of the long horizontal edge position; When the users do not work, the arms support board 4c is inside the drawer 1c, and its upper plate surface and the top surface of drawer panel 11c are at the same horizontal plane. At this moment, two hinge surfaces of the hinge are combined together (i.e. its included angle close to 0°). When the users prepare to work, he should pull the drawer 1c open firstly, and opens the arms support board, namely turns over upward the arms support board 4c by 180° around the axial of the hinge. At this moment, one plate surface of the arms support board 4c is contacted with and is supported on the top surfaces of drawer panel 11c. Two hinge surfaces of the hinge are totally opened (i.e. its included angle close to 180°). Then push the drawer 1c towards the desk panel 3c until the arms support board 4c contact with the desk panel 3c. At this moment, the upper surface of arms support board 4c and the desk panel 3c is at the same horizontal height, or slightly higher than the upper surface of desk panel 3c. The desk can be regarded as the writing desk to be used at this moment. In order to keep the stability at the working position for the arms support board 4c and to prevent the arms support board from disconnecting with the desk panel, it can add the positioning device among the arms support board, the drawer and the writing desk, such as the inserted pin, positioning hook, the magnetism

mass, the pressurize pit on the guide, etc. And then the users support themselves by the pair of elbow and forearm on the arms support board 4c. The produced pressure and turn-over moment are borne by the hinge and the top surface of drawer panel 11c. Therefore, the supporting is stable and reliable; when the users stop working, he should turn over the arms support board 4c by 180° around the reverse direction above described to make it enter into the drawer 1c. Finally, push in the drawer 1c at the underside of desk panel 3c; it's evident that the turnover of the arms support board 4c does not occupy the lower space of the drawer 1c.

[0035] The movable backing board 5c is the board whose shape is roughly the same as that of the arms support board 4c. Connect the movable backing board to the upper surface (i.e. the arms support board 4c is supported on the upper surface of top surface of drawer panel 11c) of arms support board 4c with the removable connecting parts (for instance: magnet, pin, snap fastener, etc.). It makes the upper surface of this movable backing board 5c be close to or slightly higher than the upper surface of computer keyboard 6c placed on the desk panel 3c in the horizontal height. At this moment the desk can be regarded as the computer desk to be used. When the pair of elbow and forearm of users are supported on the movable backing board 5c of the arms support board 4c to operate the computer keyboard 6c, it has avoided needing to upwarp the wrist; Certainly, while turning over and writing the files, it can be very convenient to take down the movable backing board 5c, a pair of elbows and forearms of users are supported on the arms support board 4c directly. In this way, one desk can act as computer desk and writing desk at the same time.

[0036] For the ninth embodiment of this invention, there supports a keyboard tray 12c on the top surface of two pieces of drawer side plate of drawer 1c (the t keyboard ray 12c can also support on the a pair of guides parallel set up on the internal board surface of two pieces of drawer side plates). There are the computer keyboard 6c and mouse as well as wrist pad (with mouse pad) placing on the keyboard tray 12c (lead mouse cushion), and wrist cushion. The tray can carry out the push-pull backwards and forwards inside the drawer. Pull the drawer 1c open and open the arms support board 4c. At this moment the upper surface of arms support board 4c is close to or slightly higher than the upper surface of computer keyboard 6c in the horizontal height, and the height is all lower than the lower surface of desk panel 3C. The desk can be used as the computer desk at this moment. When the pair of elbow and forearm of users are supported on the arms support board 4c directly to operate the computer keyboard 6c, it has avoided needing to upwarp the wrist; While turning over and writing the files, it can also be very convenient to fit on the movable backing board 5c, then push the drawer 1c towards the desk panel 3c until the movable backing board 5c contact with the desk panel 3c. It makes the upper surface of movable backing board 5c is the same as or slightly higher than the upper surface of desk panel 3c. The desk can be used as the writing desk at this moment. The pair of elbow and forearm of users are supported on the movable backing board 5c. As shown in Fig. 21, 22; other structures are the same as that of the eighth embodiment, and no longer give unnecessary details repeatedly.

[0037] The tenth embodiment of this invention is made out of one drawer 1d, one supporting rack 2d, one piece of desk panel 3d, one piece of arms support boards 4d and one piece of wedge-shaped block 5d, as shown in Fig. 23~26, among them:

[0038] The big drawer 1d is at the underside of desk panel 3d that is supported by the supporting rack 2d and it is in the face of the users of the sitting posture. And the big drawer1d is on the longitudinal guide (not shown in the figure) set up under the at desk panel 3d, which can be pushed and pulled backwards and forwards along the orientation face to the users of sitting posture; The desk panel 3d utilizes the scalable or foldable supporting that is supported by the back end of supporting rack 2d to make the desk panel 3d reach two kinds of states of horizontal and slope. When the drawer is provided for users to work, it can preserve or take out file, tool, etc. conveniently. There is one piece of drawer panel 11d in front of the drawer 1d. The above mentioned all belongs to the existing technology; The top surface of this drawer panel 11d is the inclined top surface whose front end inclines downward by K° (approximately 12° or 24°).

[0039] The arms support board 4d is formed by the left, right vertical side edge of the desk panel, the two separated short horizontal edges of front edge and the one long horizontal edge of rear edge, and arc-shaped edge of middle part being internal concave form. And the arms support board 4d is connected to the top end position of internal plate surface of drawer panel 11d of drawer 1d with the hinge (common hinge, or flat plate hinge, or bending hinge) at the side of the long horizontal edge position; When the users do not work, the arms support board 4d is inside the drawer 1d. At this moment, two hinge surface of the hinge are combined together (i.e. its included angle close to 0°).

[0040] When the users want to read, draw, it is necessary to adjust the desk panel 3d and the arms support board 4d to the sloping state. Pull the drawer 1d firstly and open the arms support board, namely turn over the arms support board 4d around the axial of the hinge (turn over by 180°+K°). At this moment, one plate surface of the arms support board 4d is contacted with and is supported on the inclined top surfaces of drawer panel 11d. Then push in the drawer 1d to the underside of the desk panel 3d until the arms support board connects together with the desk panel. At this moment, the slope state of arms support board 4d and the desk panel 3d are probably identical, and the contact surface of the arms support board is the same as or slightly higher than the contact surface of the desk panel in the height. Accordingly the pair of elbow and forearm of users are supported on the arms support board 4d in order to satisfy the users' need

to read or draw; when the users stop working, he should turn over the arms support board 4 along the reverse direction above described to make it enter into the drawer 1d. Finally, push in the drawer 1d at the underside of desk panel 3d; it's evident that the turnover of the arms support board 4d does not occupy the lower space of the drawer 1d;

[0041] The wedge-shaped block 5d is a triangular right prism body of acute angle K° (approximately 12° or 24°). It is connected to the back side of the arms support board 4d with the sliding guides (or with the axis of rotation perpendicular to the plate surface of the arms support board 4d). In order to ensure the wedge-shaped block 5d to be wedged tightly without loosen, there should be set up with the a set of elastic locating pin 6d at the back side of the arms support board 4d, for example the locating pin is composed of the ball and the compression spring;

[0042] When the users want to write, operate the computer keyboard and mouse, it is necessary to adjust the desk panel 3d and the arms support board 4d to the horizontal state. Lift the arms support board 4d with hand, and push on (or rotate around the vertical rotation axis) the wedge-shaped block 5d to reach the position between the arms support board 4d and the oblique top surface of drawer panel 11d to make the arms support board 4d and the desk panel 3d take on the state of equal height or slightly higher horizontal state. And the balls of the elastic locating pin 6d automatically lean against the end of the wedge-shaped block 5d under pressure of compression spring, support in order to prevent the wedge-shaped block 5d from loosing.

[0043] The eleventh embodiment of this invention is to change one drawer 1c of the ninth embodiment into one piece of push-pull board 1e and cancel the keyboard tray, as shown in Fig. 27, 28. The push-pull board 1e is at the underside of desk panel 3e that is supported by the supporting rack 2e and it is in the face of the users of sitting posture. And the push-pull board 1e is on the longitudinal guide set up under desk panel 3e (not shown in the figure), which can be pushed and pulled backwards and forwards along the orientation face to the users of sitting posture; The push-pull board 1e is made out of one piece of front end-plate 11e and one piece of horizontal plate 12e whose plate surfaces are perpendicular each other. It is used for placing the computer keyboard and mouse (with mouse pad) as well as the wrist pad, etc. when the users work. put of the (take the mouse cushion). Others are the same as that of the ninth embodiment.

[0044] The twelfth embodiment of this invention is made out of one drawer 1f, one supporting rack 2f, one piece of desk panel 3f, and one piece of arms support boards 4f and keyboard tray 5f, as shown in Fig. 29~34, among them:

[0045] The drawer 1f is at the underside of desk panel 3e that is supported by the supporting rack 2f and it is in the face of the users of sitting posture. And the drawer 1f is on the longitudinal guide set up under desk panel 3f (not shown in the figure), which can be pushed and pulled backwards and forwards along the orientation face to the users of sitting posture; The drawer 1f is made out of one drawer panel 11f, two drawer side plate 12f, one drawer back plate 13f and one drawer bottom plate 14f. When provided for users to work, it can preserve or take out file, tool, etc. conveniently. In addition there can be also all fixed a piece of plate slab on the internal plate surface of two drawer side plates 12f. The above mentioned belongs to the existing technology.

[0046] The arms support board 4 is formed by the left, right vertical side edge of the desk panel, the two separated short horizontal edges of front edge and the one long horizontal edge of rear edge, and the arc-shaped edge of middle part being internal concave form. It can be allocated symmetrically at the left side and the right side of the arms support board and the width of right side can also be greater than that of left side so as to adapting to the persons who operate with right hand. While for the person who operate with left hand, it can be allocated contrary to it. The arms support board 4f is connected to the top end position of internal plate surface of drawer panel 11f of drawer 1f with the hinge (common hinge, or flat plate hinge, or bending hinge) at the side of long horizontal edge position; When the users do not work, the arms support board 4f is inside the big drawer 1f, and its upper plate surface and the top surface of drawer panel 11f are at the same horizontal plane. At this moment, two hinge surfaces of the hinge are combined together (i.e. its included angle close to 0°). When the users prepare to work, he should pull the drawer 1f open firstly, and open the arms support board, namely turns over the arms support board 4f upward by 180° around the axial of the hinge. Then push in the drawer 1f to the underside of the desk panel 3f until the arms support board 4f contacts together with the desk panel 3f. At this moment, the arm support board or is the same as the height of the desk panel, or is slightly higher than the desk panel. At this moment, the desk can be used as the writing desk. In order to keep the stability at the working position for the arms support board and to prevent the arms support board from disconnecting with the desk panel, it can add the positioning device among the arms support board, the drawer and the writing desk, such as the inserted pin, the positioning hook, the magnetism mass, the pressurize pit on the guide, etc. And then the pair of elbow and forearm of users are supported on the arms support board 4f. The produced pressure and turn-over moment are borne by the hinge and the top surface of drawer panel 11f. Therefore, the supporting is stable and reliable; when the users stop working, he should turn over the arms support board 4 by 180° around the reverse direction above described to make it enter into the drawer 1f. Finally, push in the drawer 1f to the underside of desk panel 3f; it' s evident that the turnover of the arms support board 4f does not occupy the lower space of the drawer 1f.

[0047] There are the rectangle grooves on the upper

surface of the keyboard tray 5f, and the long edge of the rectangle groove is horizontal (there are the keyboard, wrist pad placing at the groove position, while there are the mouse placing on the upper surface of right side) . There is fixed with one vertical baffle plate 51f at the left side of external bottom surface of keyboard tray 5f, and there is set up with one detachable board 52f at its right side. There have two horizontal slots 521f on the detachable board 52f, and there are connected with one vertical baffle plate 522f of longitudinal stretching downwards in the middle of two horizontal slots 521f. And connect the detachable board 52f to the external bottom surface of the keyboard tray 52f with the bolt. For the keyboard tray 5f, the vertical baffle plate 51f, the vertical baffle plate 522f of stretching downwards (if the bolt is connected at left end head of horizontal trough hole 521f) are leaned against the interior of two drawer side plates 12f of drawer 1f respectively. While the external bottom surface of the keyboard tray 5f is supported on the top surface of two drawer side plates 12f (can also attain the purpose through the method that the external bottom surface of the keyboard tray 5f is supported on the plate slab of internal plate surface of two drawer side plates 12f of drawer 1f). It makes the height of each key of computer keyboard that is placed inside the keyboard tray 5f is the same as or is close to the height of upper plate surface of the arms support board 4f. The desk can be used as computer desk at this moment, as shown in Fig. 32. It avoids that operator can operate the keys only in the upwarping posture for the wrists of them; In case of not needing to use the keyboard, mouse, it can connect the bolt to the right end of horizontal slot 521f. At this moment, the keyboard tray 5f can be put on the drawer bottom plate 14f inside the drawer 1f directly, as shown in Fig. 31. The notebook computers can also be placed at the groove position of keyboard tray.

Claims

1. A kind of writing desk whose drawer connects with the arms support board, there are set up with the big drawer that can be pushed and pulled under the desk panel of the writing desk. Its characteristic lies in that there are set up with the arms support board articulated with the side of long horizontal edge place on the top end of internal plate surface of drawer panel of big drawer. The arms support board turns over upward and is supported on the top end of drawer panel. And the upper surfaces of arms support board and the described desk panel is at the same height.

2. A kind of writing desk whose drawer connects with the arms support board, there are set up with the small drawer that can be pushed and pulled at the left, right side below the desk panel of writing desk. Its characteristic lies in that there are set up with one piece of left arms support board and one piece of right arms support board respectively on the top of internal plate surface of opposite drawer side plate of left, right small drawer. The left, right board arms support board are opposite by the concave form arc shape side and are articulated each other. The left arms support board and right arms support board turn over upward respectively and are supported on the top end of the corresponding drawer side plate. And the upper surfaces of left, right arms support board and the described desk panel is at the same height.

3. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that there are connected with one movable backing plate whose shape is the same as that of the arms support board by the removable joint parts on the upper surface of the described arms support board; or the upper surface of movable backing plate and the described desk panel is at the same height.

4. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that the top end of the described drawer panel is the oblique top surface whose front ends incline downwards; and there are set up with one wedge-shaped block on the sliding guide at the rear of the described arms support board.

5. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that for the top end of internal plate surface of drawer panel of described big drawer it can use the hinge that can turn over by 180° to connect the lateral surface of long horizontal side place of arms support board.

6. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that the described arms support board is separated as one piece of left half arms support board and one piece of right half arms support board; and the long horizontal side of the arms support board is also divided into two sections and forms the groove shape together with the drawer panel.

7. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that there are connected with one waling piece of corresponding length on the plate surface of long horizontal side of described arms support board.

8. A kind of writing desk whose drawer connects with the arms support board according to the description

of the right-claim 6 its characteristic lies in that there are connected with one section of waling piece of corresponding length respectively on the plate surface of described two section of long horizontal side of arms support board.

9. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that there are set up with one keyboard tray inside the two pieces of drawer side plate of the described big drawer.

10. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 1, its characteristic lies in that the described big drawers are a kind of push-pull board.

11. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 2, its characteristic lies in that there are all the vertical side at the left side of board surface of described left arms support board and at the right side of board surface of described right arms support board.

12. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 2, its characteristic lies in that it can use the hinge that can turn over by 180° to connect the vertical lateral surface of left, right arms support board at the top end of internal plate surface of opposite drawer side plate of described small left, right small drawers.

13. A kind of writing desk whose drawer connects with the arms support board according to the description of the right-claim 11, its characteristic lies in that there are connected with one piece of vertical slab billet respectively on the plate surface of vertical side place of described left, right arms support board.

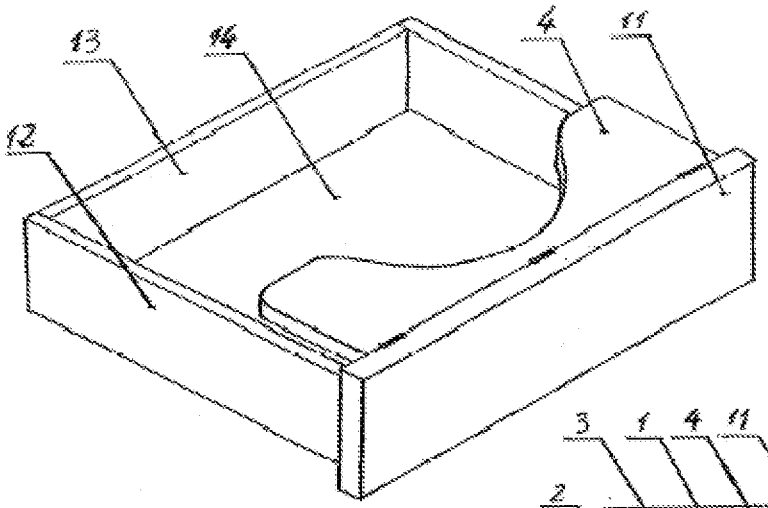

Figure 2

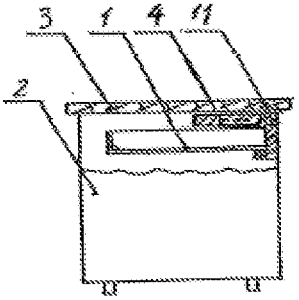

Figure 1

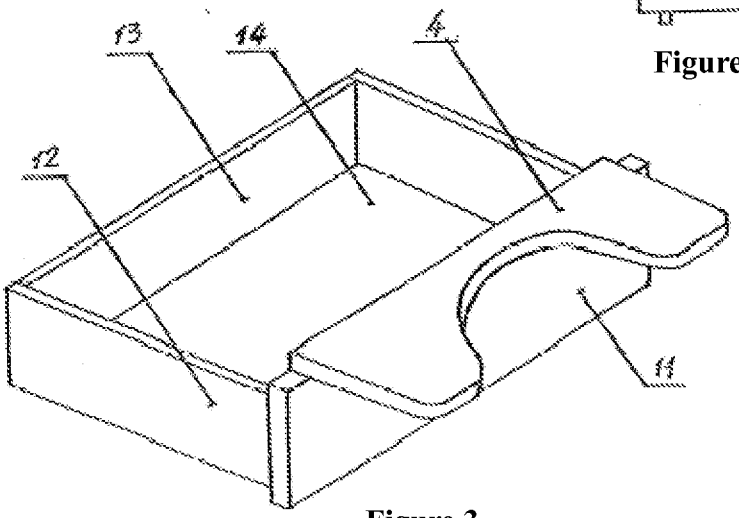

Figure 3

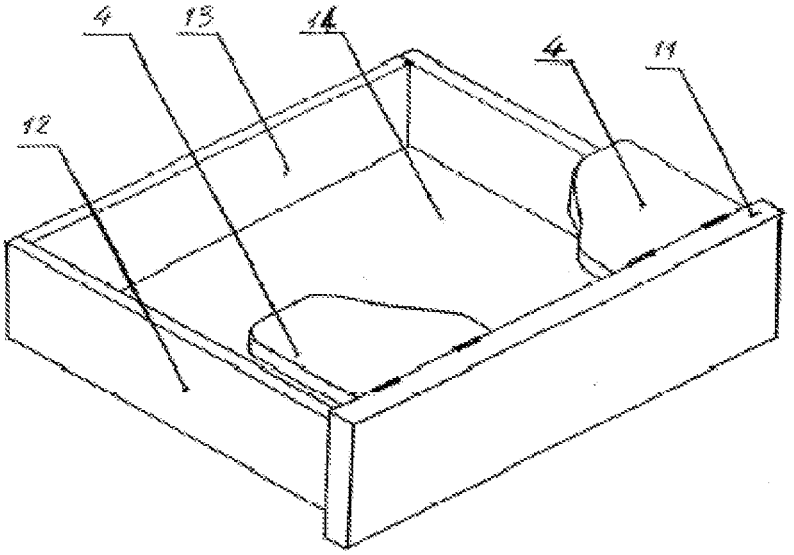

Figure 4

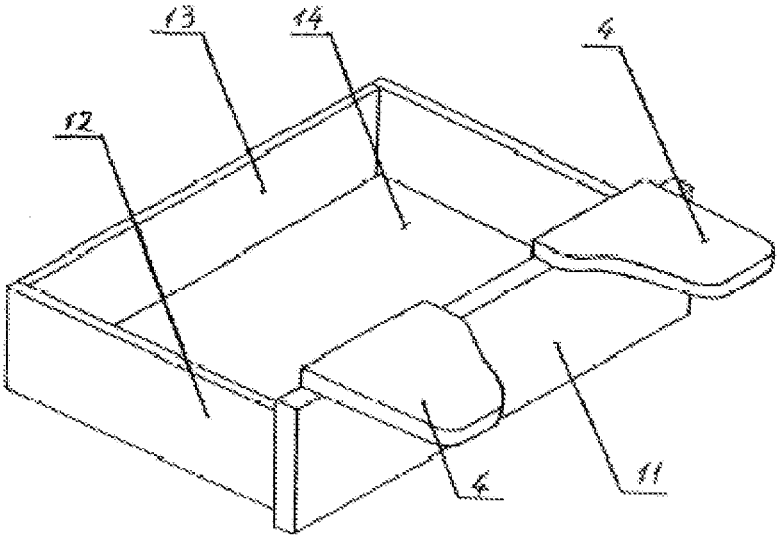

Figure 5

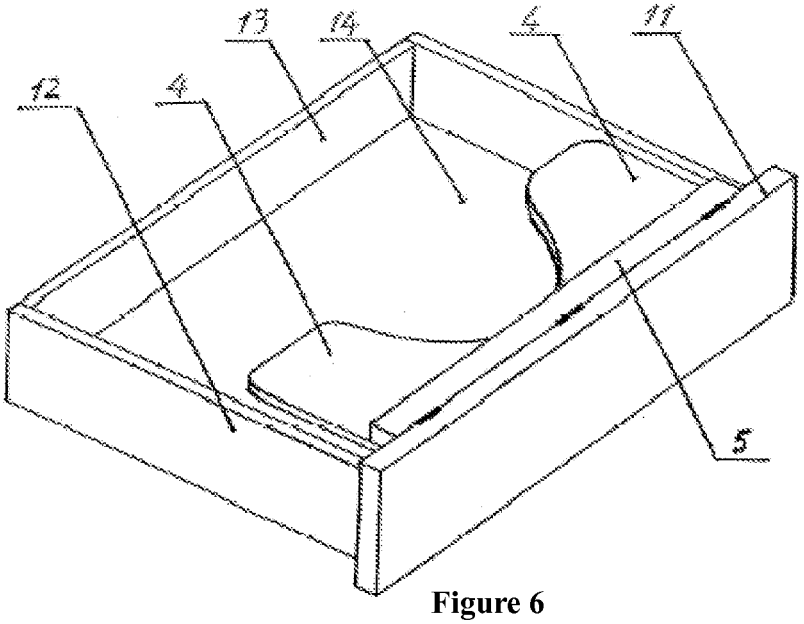

Figure 6

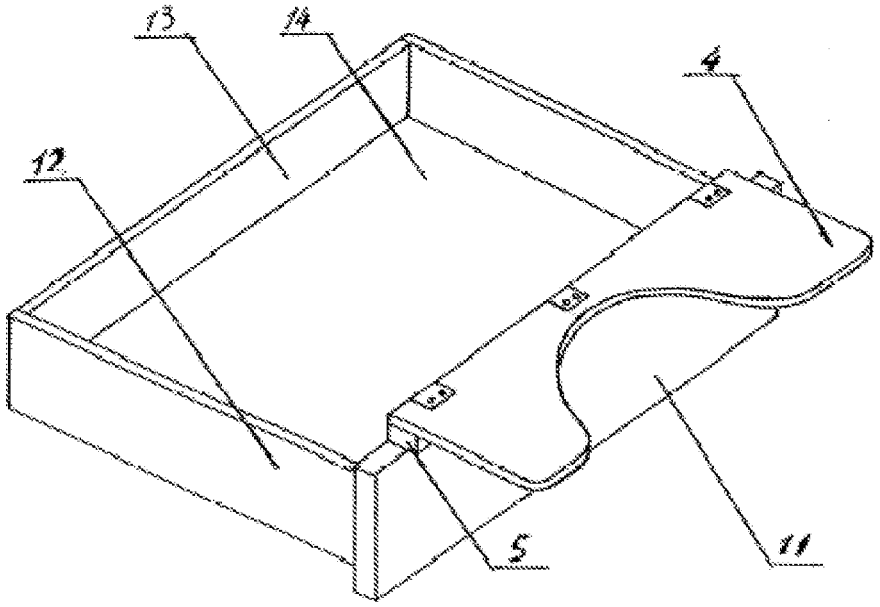

Figure 7

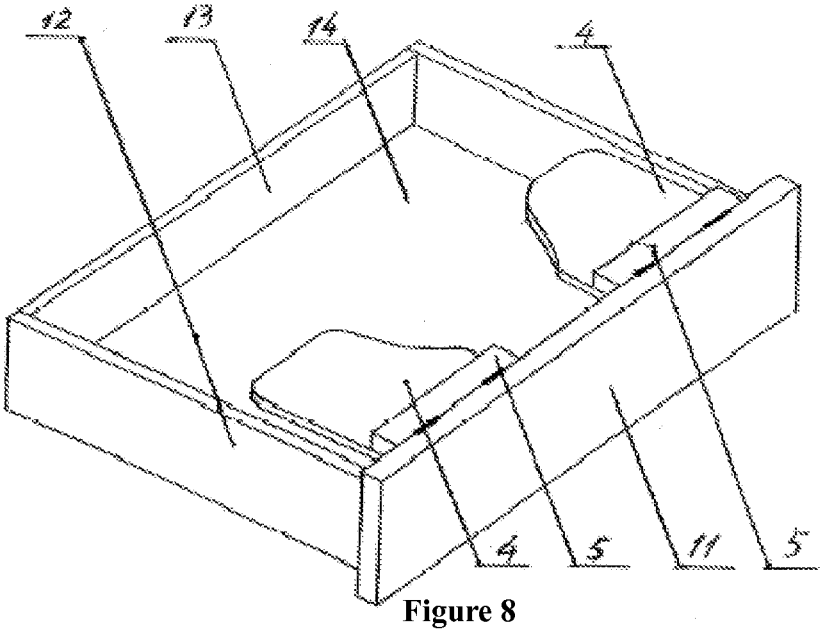

Figure 8

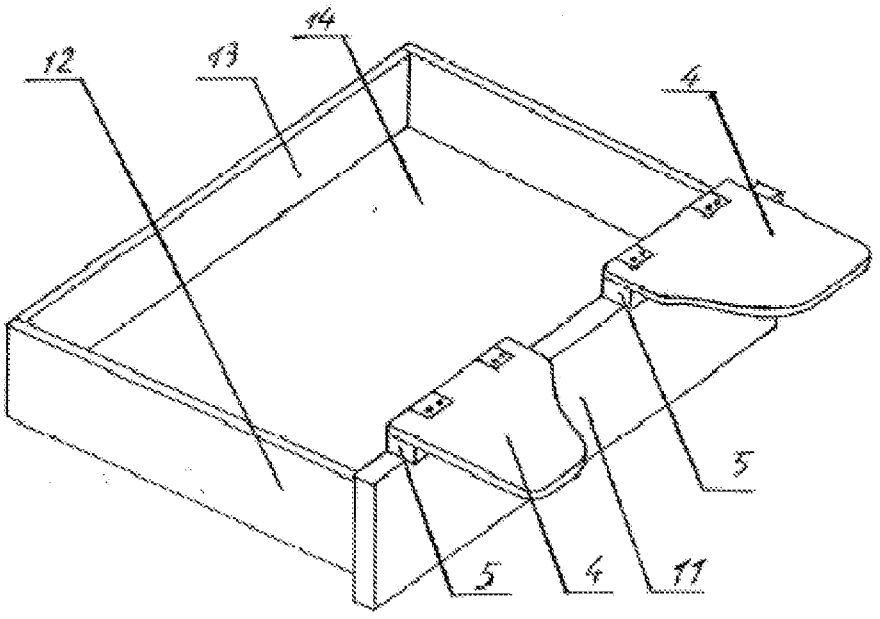

Figure 9

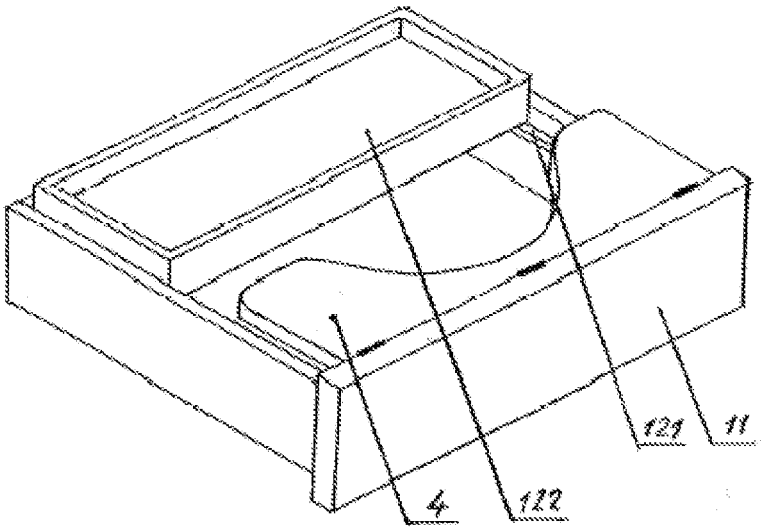

Figure 10

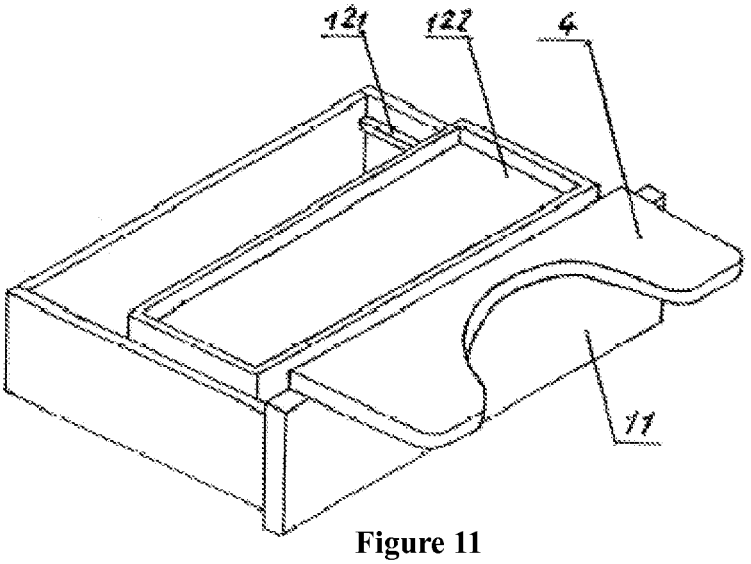

Figure 11

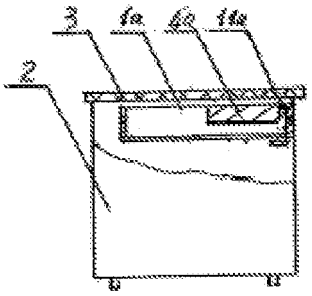

Figure 12

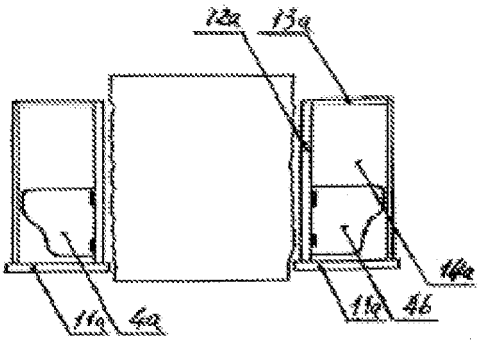

Figure 13

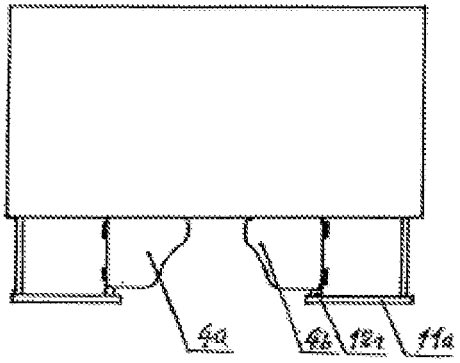

Figure 14

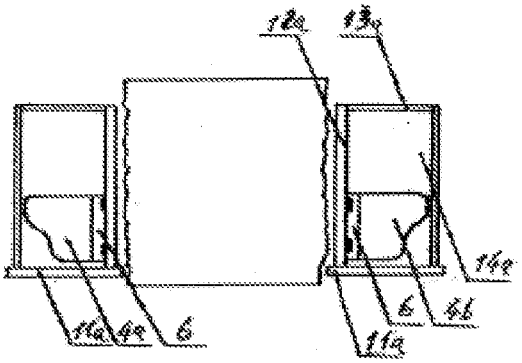

Figure 15

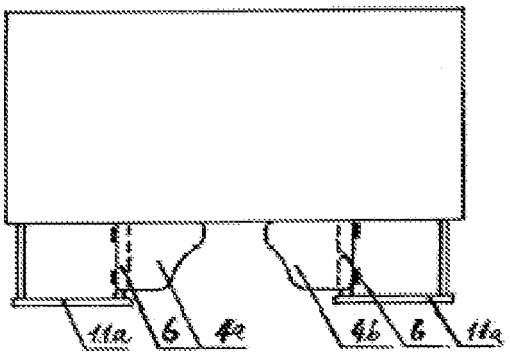

Figure 16

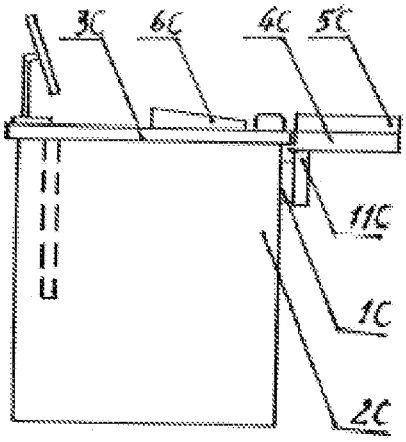

Figure 17

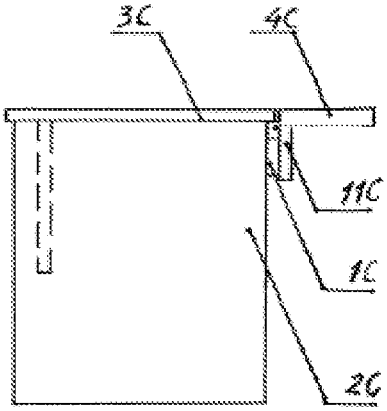

Figure 18

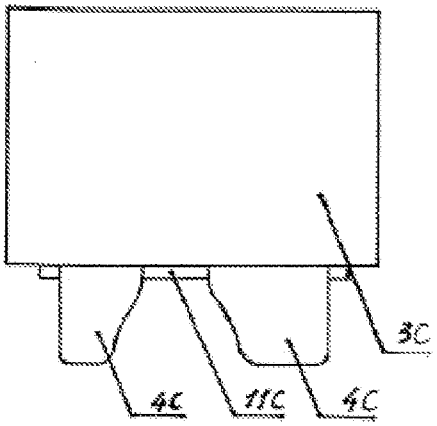

Figure 19

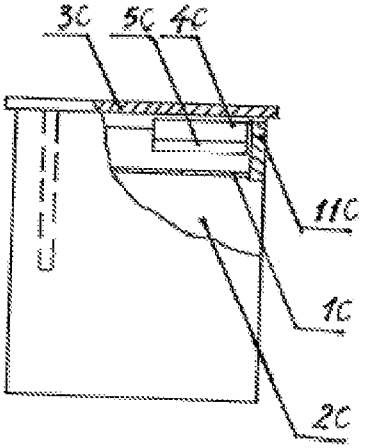

Figure 20

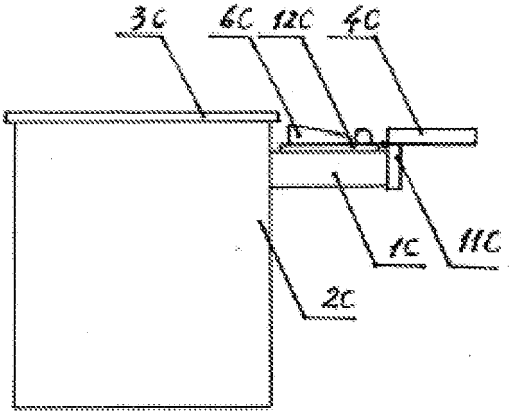

Figure 21

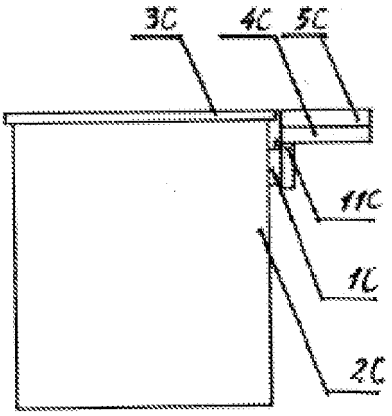

Figure 22

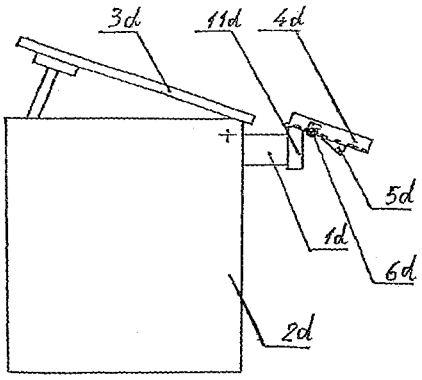

Figure 23

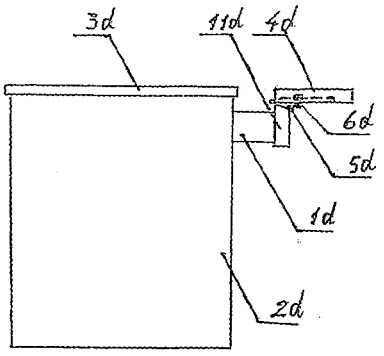

Figure 24

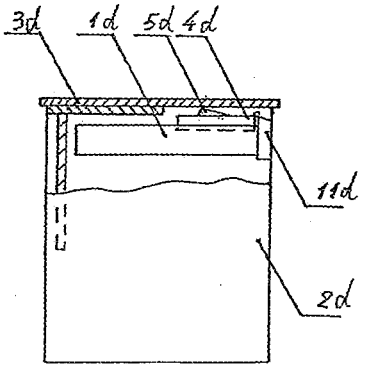

Figure 25

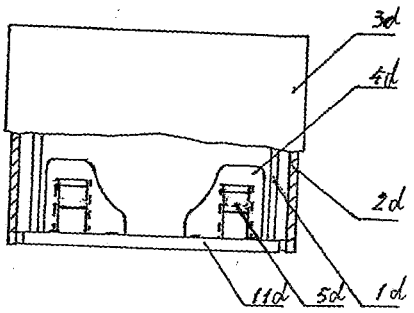

Figure 26

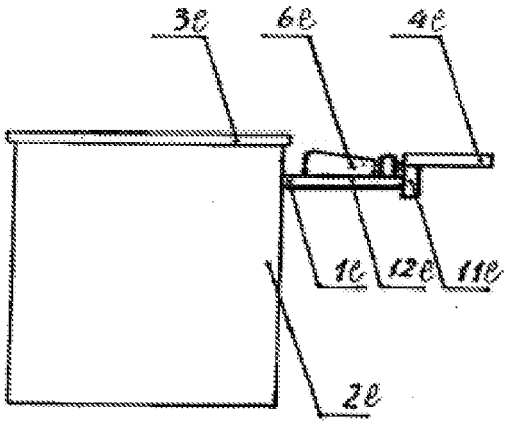

Figure 27

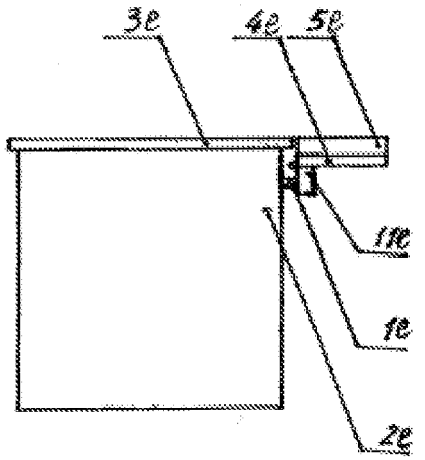

Figure 28

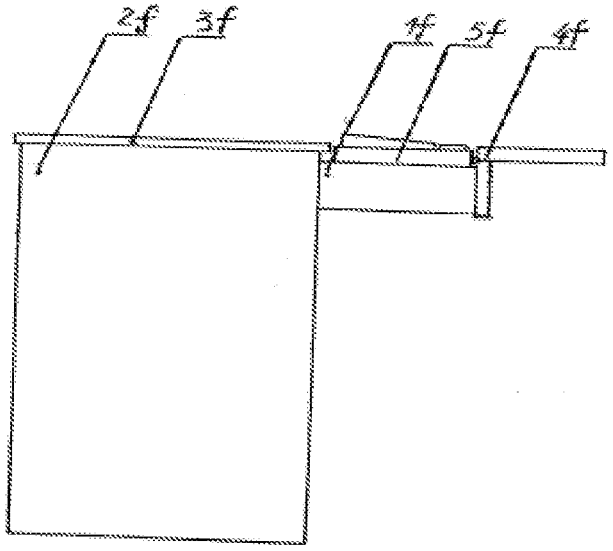

Figure 29

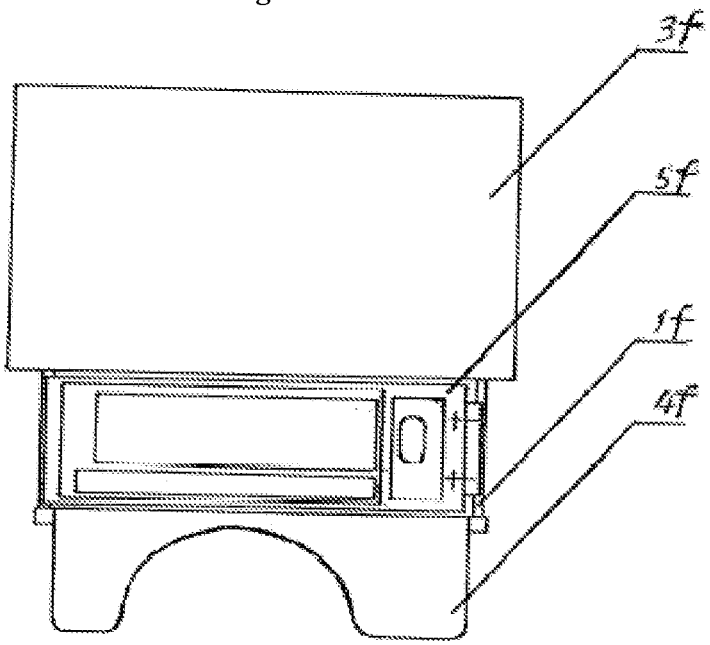

Figure 30

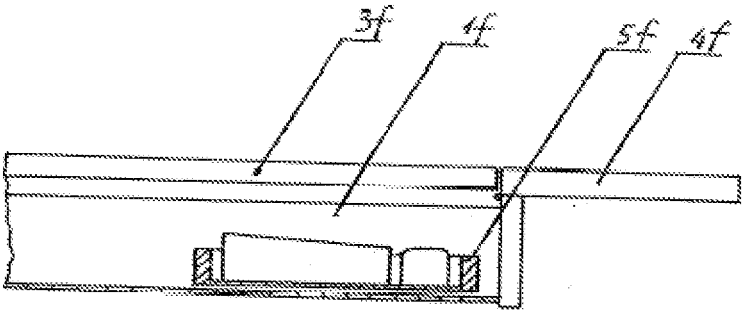

Figure 31

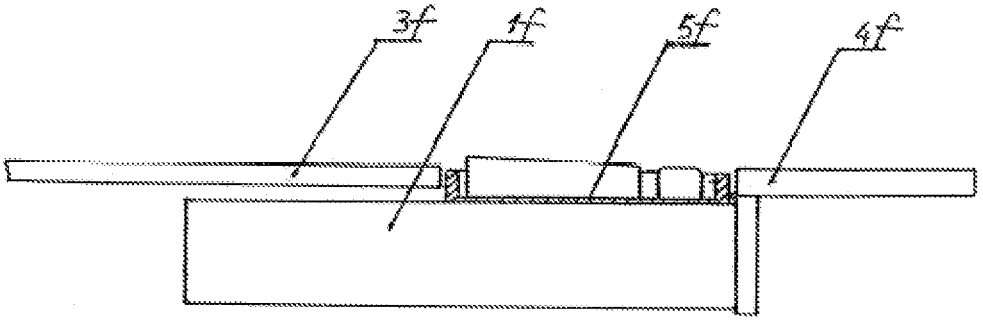

Figure 32

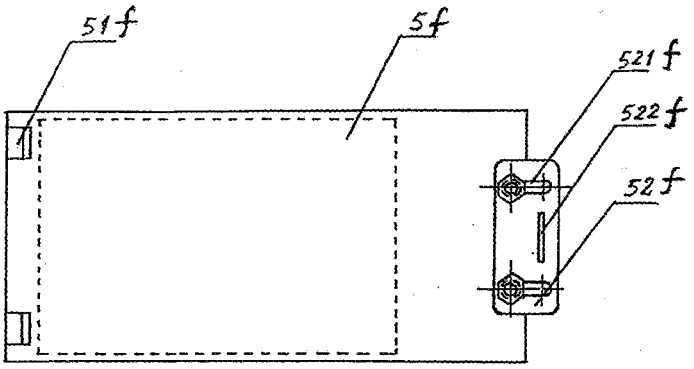

Figure 33

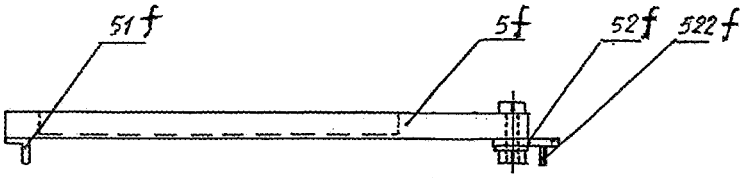

Figure 34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2007/001821

A. CLASSIFICATION OF SUBJECT MATTER

A47B17/03(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC A47B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, PAJ: support+,sustain+,rest+,arm,forearm,ancon,elbow,finesse,wrist,desk+,secretaire,table,drawer?

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN2669703Y (DUAN Jixing) 12.Jan.2005(12.01.2005) pages 1-3 of the specification, figures 1-4	1-8
Y	CN2372975Y (SU Yuan) 12.Apr.2000(12.04.2000) pages 1-2 of the specification and figures 1-3	1-8
A	CN2686422Y (LV Fanzhen) 23.Mar.2005(23.03.2005) the whole document	1-8
A	WO0180687A2(WAGNER ISAAC) 01.Nov.2001(01.11.2001) the wholedocument	1-8
A	US4621781(MARVEL METAL PRODUCTS CO) 11.Nov.1986(11.11.1986) the whole document	1-8

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
02.Aug.2007(02.08.2007)	**16 Aug. 2007 (16.08.2007)**
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer YIN, Haixia Telephone No. (86-10)62085793

Form PCT/ISA /210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2007/001821

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The subject matter of claims 1-5 is a writing table having elbow supporting plate connected with drawer. Since claims 1-5 are already known lack of inventiveness, the above five claims are not linked by common or corresponding special technical features and define 5 different inventions not linked by a single general inventive concept. The application hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA /210 (continuation of first sheet (2)) (April 2007)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2007/001821

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN2669703Y	12.01.2005	NONE	
CN2372975Y	12.04.2000	NONE	
CN2686422Y	23.03.2005	NONE	
WO0180687A2	01.11.2001	AU5063101A	07.11.2001
US4621781A	11.11.1986	NONE	

Form PCT/ISA /210 (patent family annex) (April 2007)