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(54) **TABLE AND CHAIR FOR BIONICS CORRECTING POSTURE**

(57) Table and chair for bionics correcting posture comprise a table (1), a chair (2) or a stool, and the lower parts of the table legs (8) are connected with a footplate. A chair back (17) is connected between the supports (18) of the chair back. A posture correcting device and a mechanism for fixing the posture correcting device are disposed on the upper part and the lower part of the table and chair, between the table (1) and the chair (2), or between the table legs (8) and the chair legs (8). A table top lifting/lowering mechanism is disposed between the table top (3) and the table case for adjusting the height and inclination of the table top (3). It is convenient to move the table (1) or the chair (2) back and forth and adjust the height of the table and chair, and the structure of the table and chair is simple.

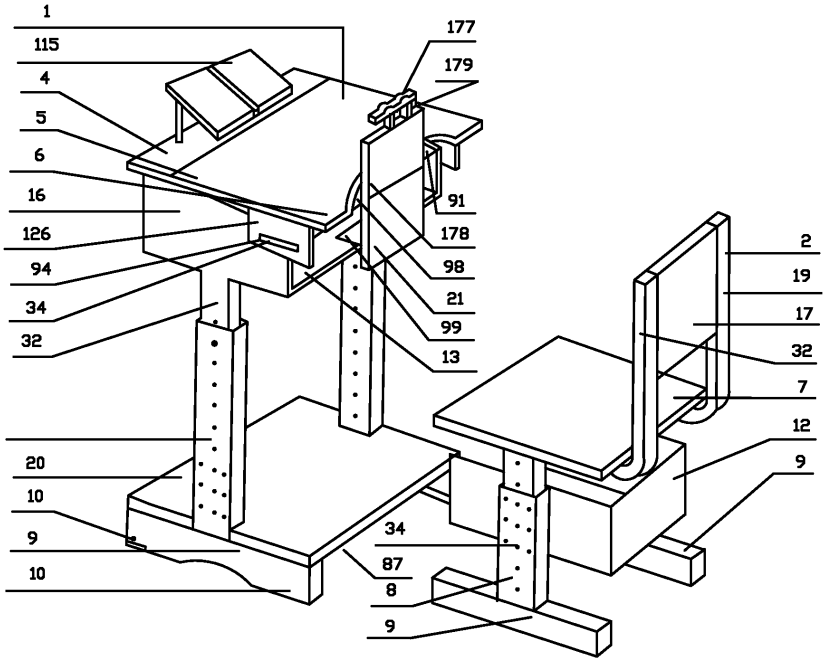

FIG. 1

EP 2 465 376 A1

Description

[0001] The invention relates to a bionic and posture-correcting desk and chair, and more particularly to a bionic and posture-correcting desk and chair for primary or middle school students.

[0002] Nowadays, an increasing number of primary school students and middle school students are suffering from short-sight and hunchback. Thus, to develop a posture-correcting backrest for study is a consensus and requirement from people all over the world.

[0003] There are many causes for such unhealthy tendency and the results are serious. From the perspective of school hygiene, "forward sitting position" is defined if a person's upper body gravity is right on or in the front of the ischiatic tuberosity, where the balance is maintained by the back muscles and thighs. "Backward sitting position" is defined if a person's upper body gravity is behind the ischiatic tuberosity, where the back must be against the backrest. It is apparent that the forward sitting position is likely to cause fatigue while the backward sitting position is not. However, students are fond of using the forward sitting position to study by bending over the desks. From the perspective of the physiology, when your line of sight is perpendicular to the object you are looking at, the image projected onto your retina is the clearest. It is called the "physiological visual angle". Therefore, the students have to look down for the clearest image. From the perspective of the biology, human bones are made up of hard and fragile inorganic composition and flexible organic composition. The physical properties of bones are hardness and flexibility. The content of different composition and the physical properties of bones vary with age. For example, teenagers' bones are less hard but more flexible and elastic; therefore they are unlikely to be fractured but likely to be deformed. If students do not pay more attention on their sitting position when they study, they would suffer from hunchback, scoliosis or short-sight. Liu Zhiming, the attending physician in Beijing Puren Hospital (previously Beijing No. 4 Hospital), finds out after many years research that if teenagers pay less attention on their sitting position when they study, they are more likely to suffer from fatigue, short-sight and hunchback. An even more serious consequence is that they are at considerably higher risk of contracting cervical spondylosis after growing up.

[0004] However, this unhealthy phenomenon has not been deeply realized. On the one hand, students like to use the forward sitting position to study by bending over the desks, they have not been aware of the function of the backward sitting position. On the other hand, some students partially lay great emphasis on backward sitting position, they have not been aware of the importance of the forward sitting position and not recognized such position can be necessary and corrected. But in fact, if there is no "forward sitting position", Chinese traditional brush cannot be used properly. The backward sitting position, as a sitting position contrary to the forward sitting position, also has the problem that students study by bending over the desks. In addition, the forward sitting position and the backward sitting position, as two basic positions, can be freely switched. During the switch, there are other optional positions because people cannot sit with only one position. All the positions are contributable to correct sitting, reading, writing, and listening, i.e. a fist distance between chest and edge of desk and a foot from eyes to books. In this way, the fingertip can be an inch from the pen point while the head and body can remain straight.

[0005] To solve the above problems, some measures have been taken but with poor results. With respect to the backrest, related devices have been invented to prevent short-sight and hunchback. Chinese Pat. App. No. CN02354452 discloses a healthy desk and chair for study whose desk is fixed and the rear part thereof is tilted. However, the space between the desk and chair is difficult to adjust and even if the space is well adjusted, it is troublesome for a user how to get out from the desk and chair. Chinese Pat. App. No. CN03330221 discloses a chair whose legs are disposed with wheels, which is conducive to adjusting the space between the desk and chair but the wheels is inconvenient for turn on/off. Chinese Pat. App. No. CN03238636.2 discloses a novel desk and chair for prevention and treatment of myopia and humpback. The desk and chair has a backrest connected to a beam via a chin pad. An upper and lower adjustable columns are flexibly connected with the rear of the desk and slightly tilted backward. However, when users sit on the chair and leans against the backrest, the desk will shakes. Meanwhile, the alteration of sitting position is very difficult and the height of the device cannot be modified. Chinese Pat. App. No. CN03275800 discloses a desk and chair for study, in which the space between the desk and chair is adjustable. However, the desk does not have a sternal plate and users tend to study lying on the desk. Furthermore, the height of the device cannot be modified.

[0006] The above devices have effects to some extent but still have the following problems. The conventional adjustable support is the sternal plate. The lower end of the sternal plate is not connected with the ventral plate and the abdomen is not supported. When students are in study, their waists are likely to bend and their bodies are likely to move downwards. In addition, under normal circumstances, sitting tools do not have backrests, if they have, the backrests are mostly fixed. Even if the backrests are moveable forwards and backwards, they are not fit with the conventional adjustable support, therefore, the external condition for study with the correct sitting position is not achieved

[0007] It is one objective of the invention to provide a bionic and posture-correcting desk and chair. It allows users to maintain the correct "forward sitting position" and "backward sitting position" or a sitting position therebetween all the time, and meanwhile the sitting positions which are comfortable and unlikely to cause fatigue can be easily adjusted or changed.

[0008] To achieve the above objective, in accordance with the invention, there is provided a bionic and posture-correcting desk and chair, comprising a separate or combined desk and chair or stool, the bottom of desk legs being connected with a footrest and a chair back being connected between supports of the chair back, wherein at the upper and lower parts of the desk and chair are disposed with a posture-correcting device and a mechanism for fixing the posture-correcting device; the posture-correcting device is replaceable at will and allows users to maintain the correct "forward sitting position" and "backward sitting position" or a sitting position therebetween all the time, and a desktop lifting mechanism is disposed between the desktop and a desk drawer for adjustment of the height and inclination of the desktop.

[0009] The desktop lifting mechanism is a lifting mechanism disposed between a desktop and a bookrack for synchronous lifting and lowering the desktop and bookrack. The lifting mechanism comprises a vertical slot disposed at the relative inner sides of the desk's left and right front legs. The relative inner sides of the upper ends of the left and right supports are attached by a vertical plate. The supports connect the vertical plate and its two ends are moveable up and down the vertical slot and the inner legs. The upper ends of the two supports are moveably connected with the front end of the desktop. The middle of the left and right sides of the vertical plate projects upwards and passes through left and right long-strip apertures on the desktop to be parallel with the desktop. On the boss portion is disposed with 1-2 bookrack support holes. Inside the support holes is disposed with a moveable pin that fits with the recess on a support tube of the bookrack. The moveable pin has a bow-shaped leaf spring or an aperture on the wall of the support hole. Inside the aperture is disposed with a smaller boss. The rear end of the boss is connected with a column, whose rear end is against a spring. At the rear bottom of the desktop is disposed with a position adjusting tooth that fits with an edge angle of the upper end of the desk box.

[0010] The lifting mechanism comprises a rear bottom of the desktop moveably connected with the rear upper end of the desk box. The rear front end of the desktop is moveably connected with the vertical plate. The middle portion of the left and right sides of the vertical plate projects upwards and passes through the long-strip apertures on the desktop to be parallel with the desktop. On the boss portion is disposed with 1-2 bookrack support holes. Inside the support hole is disposed with a moveable pin that fits with a support tube of the bookrack. From the top to the bottom of the desk boxes are respectively disposed with a control groove inclining backwards. The control groove and column underneath are sheathed together. The rear of the vertical plate is moveably connected with a support pillar. The lower left and right edge angles of the support pillar fit with the arc-shaped teeth of a desk box baseplate.

[0011] The lifting mechanism comprises a rear bottom of the desktop moveably connected with the rear upper end of the desk box. The middle portion, from the front end of the desktop, is disposed with a long-strip aperture. Inside the aperture is provided with a moveable bracket, whose opposite left and right ends extend with a shaft and whose middle portion is connected by front and rear plates. The left and right sides of the moveable bracket are respectively disposed with a bookrack support hole. In the middle of the moveable bracket is disposed with an adjustable tube hole. At the bottom of the front end of the desk box is moveably connected with an adjustable tube that is sheathed with an adjustable tubular pile. The upper end of the adjustable tube extends to be parallel with the desktop through the adjustable tube hole on the moveable bracket. The upper end of a connecting rod in the adjustable tube is connected with a button and the lower end thereof is connected with an adjustable pin. At the connection point between the moveable bracket and the adjustable tube is disposed with a vertical slot and a cross rod is used to connect the moveable bracket and the adjustable tube as a whole.

[0012] On the desk footrest or the chair footrest provided with wheels is disposed with a lock mechanism, which is used to keep the desk and chair steady relative to the ground.

[0013] The desk footrest or the chair footrest is disposed with a foot button as the lock mechanism, whose bottom is connected with foot block by a spring.

[0014] For the posture-correcting device and the mechanism for fixing the posture-correcting device, at least one footrest is disposed at the place where the height-unadjustable desk and chair legs are flatly placed. The footrest is directly or indirectly placed on the ground or the track or covered in the desk layer cover to float above the connecting bracket.

[0015] The footrest is disposed on a height-adjustable desk and chair having signal left and right legs. The width of the footrest is the width of the desk legs and the footrest is fixed on the desk legs. Alternatively, the footrest is disposed on a height-unadjustable desk and fixed on the desk legs. The rear ends of the chair beams are moveably connected with the lower ends of the chair back supports. Between the lower portions of the chair beams and chair bases are connected with lower chair legs. The lower ends of the upper chair legs are inserted in the upper ends of the lower chair legs on the chair beams and fixed. The desk and chair legs comprise upper legs and lower legs and the upper ends of the two lower legs are connected together as a whole. The lower ends of the two upper legs that are connected under the desk box and the chair beam are respectively inserted in the upper ends of the lower legs and fixed. The rear end of the chair beam is moveably connected with the lower end of the chair back support. The opposite outer sides of the front ends of chair armrests are respectively connected with an armrest plate. The armrest plate is moveably connected with a moveable tube outwards. The movable tube comprises an external tube and an internal tube. The front end of the internal tube is moveably connected with

the armrest plate and the rear end of the external tube is moveably connected with the chair back supports. The front end and the bottom of the external tube are reversely disposed with a spring bolt. The spring bolt fits with the positional adjustment holes at the front lower portion of the internal tube. The rear section of the internal tube is disposed with an aperture. The aperture moveably co-operates with an adjustable slot under the rear section of the external tube. The chair back is moveable back and forth or fixed. In addition, if the chair has four legs disposed at four sides, the chair having the chair base disposed between the left and right chair legs can be placed on the desk footrest having a leg cover opening and a leg cover aperture.

[0016] The desk and chair legs are disposed with layer covers. The width of the layer cover is the length between the front and rear legs of the desk and chair and the length of the layer cover is the length between the left and right legs. The layer cover is connected with the gap of one layer or multiple layers of at least two strips. The outer sides of the left and right ends of the transversal layer cover, or the front and rear or one end of the longitudinal layer cover are separately connected with a baffle. The strips are directly connected with the legs or the vertical plate having the same width as the two legs. The left and right sides of the vertical plate cover the other two sides of the legs to form a recess/square tube/circular tube layer cover, which is fixed to the legs by the bolt (spring clamp) via the positional adjustment holes or moveably covered on the legs. A connecting plate is used to connect the two ends of the vertical plate. One end of the vertical plate is disposed with an aperture that fits with the corresponding boss of the footrest. A flat square is disposed under the chair or the footrest. Between the flat square and the vertical plate is disposed with a layer cover. The layer cover, the long-strip aperture or pin head are sheathed together.

[0017] Advantages of the invention are summarized below: 1. According to the bionic principle, the lower end of the single-column lower adjustable pillar, similar to the desk backrest sternal plate, extends to the lower part of the abdomen and the bottom of the desk box (desk box baseplate) from the chest to the desk edge. The fixed connection between the lower end of the lower adjustable pillar and the desk edge is changed to the moveable connection. The upper adjustable plate between the desk backrest sternal plate and the ventral plate is inserted in a transversal gap of the adjustable plate cover or the adjustable cover of the mounting plate. The lower adjustable plate moveably connected with the lower end of the sternal/ventral plate is directly or indirectly moveably connected with the desktop lifting mechanism and the bookrack lifting mechanism to make the desk and chair as a whole. The desk or the chair is disposed with a footrest. A chair back support adjustment mechanism and a chair back adjustment mechanism are disposed on the chair including the layer covers, tracks, desk and chair seats and foot button. The problem that students study by bending over the desks is solved by using such structure. If the user places his feet hardly on the footrest, the sternal/ventral plate and the chair back are against the chest, abdomen, waist and back. The user is clamped in the middle. He can bend over or lean behind at will. The desktop can be flat or inclined. The bookrack can be lifted with the desktop and remains the optimal distance and angle with eyes, therefore a reasonable space will be formed between the head, eyes, neck, chest, abdomen, waist, back, buttocks, elbows, legs, feet and the desk and chair. Users will always be at the correct "forward sitting position" or "backward sitting position" or any position in between. In addition, the position can be changed at will and students will not easily fatigue. It saves large amount of time for teaching and study. 2. The distance between the desk and the chair can be adjusted at will. Although it is the distance that is adjusted and controlled between the desk and the chair, the amount of inclination for forward and backward movement of the waist, back, chest and abdomen are indirectly controlled. Furthermore, the chair back and a sternal/ventral plate are supported and moveably connected. It is helpful to keep the waist, back, chest and abdomen straight, to allow the feet to place flat to be as wide as the shoulder. Users can easily meet the requirement for study with correct sitting positions. The space between the desk and the chair can be adjusted to be wide or narrow and users can bend over or lean behind. They are suitable for the nature of students; 3. The height of the desk and chair can be easily adjusted, especially with the application of the layer covers. Screwdrivers and wrenches are not required. It overcomes the drawbacks that tall users need to bend over and short users cannot reach. The set of desk and chair is suitable for users whether you are young or old. Only one set of the desk and chair is enough for a primary student, who can still use in high school. For a class, the desk and chair can be tailored for different students with different height. After using the desk and chair, the students will be at the same height; 4. By using the desk and chair provided by the invention is good for tidiness. The noises when moving the desk and chair is low. The chair box provided by the invention can hold more books. The desk and chair are moveable; it is easy for students to clean the floor; and 5. The bionic and posture-correcting desk and chair provided by the invention is applicable not only for families but schools. The effects are immediate. The structure is simple and it is easy to be popularized.

[0018] The invention is explained in further detail bellow with reference to the embodiments and attached drawings.

[0019] FIG. 1 is a structural representation of a desk in accordance with example 1 of the invention;

[0020] FIG. 2 is a structural representation of the desk in accordance with example 2 of the invention;

[0021] FIG. 3 is a structural representation of the desk in accordance with example 3 of the invention;

[0022] FIG. 4 is a sectional view of a moveable tube

of FIG. 3;

[0023] FIG. 5 is a structural representation of the desk in accordance with example 4 of the invention;

[0024] FIG. 6 is a front view of a chair shown in FIG. 5;

[0025] FIG. 7 is a side view of the chair of FIG. 6;

[0026] FIG. 8 is a schematic diagram of the chair of FIG. 6 in use;

[0027] FIG. 9 is a structural representation of the desk in accordance with example 5 of the invention;

[0028] FIG. 10 is a schematic diagram of a connecting method of the desk and chair of FIG. 9;

[0029] FIG. 11 is a schematic diagram of another connecting method of the desk and chair of FIG. 9;

[0030] FIG. 12 is a structural representation of the desk in accordance with example 6 of the invention;

[0031] FIG. 13 is a front sectional view of a lock mechanism of FIG. 12;

[0032] FIG. 14 is a structural representation of the desk in accordance with example 7 of the invention;

[0033] FIG. 15 is a structural representation of a lock of FIG. 14;

[0034] FIG. 16 is another structural representation of a lock of FIG. 14;

[0035] FIG. 17 is a side view of a connecting method of the desk and chair of FIG. 9;

[0036] FIG. 18 is a side view of another connecting method of the desk and chair of FIG. 10;

[0037] FIG. 19 is a side view of a footrest with upper and lower plates of the invention;

[0038] FIG. 20 is a side view of a lever type footrest of the invention;

[0039] FIG. 21 is a layout view of a desk and chair frame of the invention;

[0040] FIG. 22 is another layout view of the desk and chair frame of the invention;

[0041] FIG. 23 is a third layout view of the desk and chair frame of the invention;

[0042] FIG. 24 is a structural representation of a desk and chair in accordance with of the invention;

[0043] FIG .25 is a structural representation of the desk and chair in accordance with example 8 of the invention;

[0044] FIG. 26 is a front view of a desktop lifting mechanism of the invention;

[0045] FIG. 27 is a side view of FIG. 26;

[0046] FIG. 28 is a structural representation of another desktop lifting mechanism of the invention;

[0047] FIG. 29 is a side view of FIG. 28;

[0048] FIG. 30 is a side view of FIG. 28 in use;

[0049] FIG. 31 is a top view of a desk box baseplate of FIG. 28;

[0050] FIG. 32 is a structural representation of a third desktop lifting mechanism of the invention;

[0051] FIG. 33 is a top view of FIG. 32;

[0052] FIG. 34 is a top view of a moveable pin of FIG. 32;

[0053] FIG. 35 is a front view of FIG. 34;

[0054] FIG. 36 is a side sectional view of a desk backrest of the invention being mounted on the desktop which is placed horizontally;

[0055] FIG. 37 is a side sectional view of the desk backrest and the desktop lifting mechanism of the invention being mounted on the desktop which is placed horizontally;

[0056] FIG. 38 is a partially side sectional view of the desk backrest and the desktop lifting mechanism of the invention being mounted on a moveable connection part of the desk;

[0057] FIG. 39 is a top view of a vertical clamp plate and a lifting plate of the desktop lifting mechanism of the invention being mounted on the desk box baseplate;

[0058] FIG. 40 is a top view of the vertical clamp plate and the lifting plate of the desktop lifting mechanism of the invention being mounted at the left and right desk box side plates; and

[0059] FIG. 41 is a bottom view of a spring adjustment mechanism of the desktop lifting mechanism being mounted at the bottom of the desk box.

[0060] As shown in FIGS. 1, 2,3,5,9,12,14, and 25, a bionic and posture-correcting desk and chair, in accordance with the invention, comprises a separate or combined desk and chair or stool, the bottom of desk legs are connected with a footrest and a chair back is connected between its supports 202, in which at the upper and lower parts of the desk and chair and/or between the desk and chair (between desk legs 8 and chair legs 8) are disposed with a posture-correcting device and a mechanism for fixing the posture-correcting device. The posture-correcting device allows users to maintain the correct "forward sitting position" and "backward sitting position" or the sitting position in between at all times, and meanwhile the device is replaceable at will.

[0061] As shown in FIGS. 26-27, between the desktop 3 and the bookrack 109 is disposed with a lifting mechanism for the bookrack 109. The lifting mechanism comprises a vertical slot that is disposed at the relative inner sides of the desk's left and right front legs. The relative inner sides of the upper ends of the left and right supports 202 are attached by a vertical plate. The supports 202 connecting the vertical plate and its two ends are moveable up and down the vertical slot and the inner legs. The upper ends of the two supports 202 are moveably connected with the front end of the desktop. The 1/3 of the left and right sides of the vertical plate projects upwards and passes through left and right long-strip apertures on the desktop to be parallel with the desktop. On the boss portion is disposed with 1-2 bookrack support holes 204. Inside the support holes is disposed with a moveable pin that fits with the recess on a support tube of the bookrack 109. The moveable pin has a bow-shaped leaf spring 206 or an aperture on the wall of the support hole. Inside the aperture is disposed with a smaller boss. The rear end of the boss is connected with a column, whose rear end is against a spring. At the rear bottom of the desktop is disposed with a position adjusting tooth 33 that fits with an edge angle 211 of the upper end of the desk box.

[0062] As shown in FIGS. 28-31, with respect to the lifting mechanism, the rear bottom of the desktop 3 is moveably connected with the rear upper end of the desk box. The rear front end of the desktop is moveably connected with the vertical plate having the same length and width as a rear plate 212 of the desk box. The middle portion of the left and right sides of the vertical plate projects upwards and passes through the long-strip apertures on the desktop to be parallel with the desktop. On the boss portion is disposed with 1-2 bookrack support holes 204. Inside the support holes is disposed with a moveable pin that fits with a support tube of the bookrack. At the front inner sides of the two side plates of the desk box are respectively disposed with a control groove 218 inclining backwards from top to bottom. The middle lower portion of the rear left and right sides of the vertical plate is moveably connected with a support pillar 219, whose lower left and right edge angles fit with the arc-shaped teeth of a desk box baseplate.

[0063] As shown in FIGS. 32-35, with respect to the lifting mechanism, the rear bottom of the desktop 3 is moveably connected with the rear upper end of the desk box. The middle portion, approximately 1-2 cm from the front end of the desktop 3, is disposed with a long-strip aperture. Inside the aperture is provided with a moveable bracket, whose opposite left and right ends extend with a shaft and whose middle portion is connected by front and rear plates. The left and right sides of the moveable bracket are respectively disposed with a bookrack support hole. In the middle of the moveable bracket is disposed with an adjustable tube hole. In the middle of the bottom left and right of the inner front end of the desk box is moveably connected with an adjustable tube that is sheathed with an adjustable tubular pile. The upper end of the adjustable tube extends to be parallel with the desktop through the adjustable tube hole on the moveable bracket. The upper end of a connecting rod in the adjustable tube is connected with a button. When the button is pressed, the desktop 3 and a book placing board 115 of the bookrack 109 are always in an appropriate inclination.

[0064] A flat square box is disposed under the chair surface or footrest. The contact surface between the square box and the layer cover is disposed with a long-strip aperture or pin head.

[0065] As shown in FIGS. 1-4, with respect to the posture-correcting device of the desk and chair and a mechanism for fixing the posture-correcting device, on a height-fixed desk and chair is provided with a maximum height and space 38 for high school students or tall individuals. At the distance that desk moves close to the chair to meet the requirement for correct sitting position, a person sits on the chair 7 having the corresponding height, the back is against the chair back 17, the head, chest and abdomen are against the desk backrest 21, the elbows are placed on the desktop 3, a back desktop 5, or an elbow plate 6 having the corresponding height and, and one or more footrests 20 are disposed at the place where the feet are placed. From the lower ends (the desk bottom 10 and lower part of wheels 11) to the upper ends of the desk/chair legs 8 are connected with at least one footrest. The footrest is directly or indirectly placed on the ground or on a track 30 or covered in a desk and chair cover to float above a connecting bracket 71. The desk footrest 20 has the same width as the desk and is fixed to the desk legs 8 by bolts 34 via positional adjustment holes 32. At left and right ends of the footrests 20 are provided with strip pads 31, which are fixed to the desk legs 8 by bolts 34 via positional adjustment holes 32. Between the lower portions of the chair beams 19 and chair bases 9 are connected with lower chair legs. The lower ends of the upper chair legs are inserted fin upper ends of the lower chair legs on the chair beam 19 and fixed by the bolts 34 via the positional adjustment holes 32. The desk and chair legs comprise upper legs 8 and lower legs 8 and the upper ends of the two lower legs are connected together as a whole. The lower ends of the two upper legs that are connected under the desk box and the chair beam 19 are respectively inserted in the upper ends of the lower legs and fixed by the bolts 34 via the positional adjustment holes 32. The rear ends of the chair beams 19 are moveably connected with the lower ends of the chair back supports 18. The opposite outer sides of the front ends of chair armrests 45 are respectively connected with an armrest plate 56. The armrest plate 56 is moveably connected with a moveable tube 44 outwards. The movable tube 44 comprises an external tube 61 and an internal tube 61. The front end of the internal tube 61 is moveably connected with the armrest plate 56 and the rear end of the external tube 61 is moveably connected with the chair back supports 18. The front end and the bottom of the external tube 61 are reversely disposed with a spring bolt 134. The spring bolt 134 fits with the positional adjustment holes 32 at the front lower portion of the internal tube 61. The rear section of the internal tube 61 is disposed with an aperture. The aperture moveably cooperates with an adjustable slot 94 under the rear section of the external tube 161 by the bolt 34. The chair back support 18 is moveable back and forth or fixed.

[0066] As shown in FIGS. 5-8, the lower portion of the desk legs and the upper portion of the chair legs are disposed with a layer cover 22. The layer cover comprises a transversal layer cover 22 and a longitudinal layer cover 22. The width of the layer cover equals to the length between the inner sides (including the legs) of the front and rear legs of the desk or chair. The length of the layer cover equals to the length between the left and right legs (between the inner sides of the left and right legs). The layer cover is connected with the gap of one layer or multiple layers of at least two strips 23. The outer sides of the left and right ends of the transversal layer cover 22, or the front and rear or one end of the longitudinal layer cover 22 are separately connected with a baffle 24. The strips 23 are directly connected with the legs or the vertical plate 25 having the same width as the two legs.

The left and right sides of the vertical plate 25 cover the other two sides of the legs to form a recess/square tube/circular tube layer cover, which is fixed to the legs by the bolt (spring clamp) via the positional adjustment holes 32 or moveably covered on the legs. A connecting plate 26 is used to connect the two ends (the bottom strips 23 or chair box side plate 16) of the vertical plate 25.

[0067] As shown in FIGS. 9-13, on a height-fixed desk and chair is provided with a maximum height and space 38 for high school students or tall individuals. At the distance that desk moves close to the chair to meet the requirement for correct sitting position, a person sits on the chair having the corresponding height, the back is against the chair back 17, the head, chest and abdomen are against the desk backrest 21, the elbows are placed on the desktop having the corresponding height or on the elbow plate 6. From the lower ends (the desk bottom 10 and lower part of wheels 11) to the upper ends of the desk/chair legs 8 are connected with at least one footrest. The desk footrest 20 has the same width as the desk or chair and has the length equal to the space between two desk legs 8. When the desk is unused, the springs 35 act on the foot block 174 to leave the ground to make the desk move. The footrest can be placed on the ground or on a desk support plate 60 or on the connecting bracket 71 or can move in the lay cover 22. Under the four angles of the footrest are vertically disposed with columns 37, which are inserted in corresponding resilient support holes 32 of a footrest seat 58. The resilient support holes 32 are circular tubes 62 that are sheathed with springs 35 (externally or internally). The underside of the footrest is against by springs 35 which are sheathed higher than the circular tubes 62. After the footrest 20 is under pressure, the lower ends of the columns 37 fall to the ground and the lower ends of the columns 37 are sheathed with cap nuts 190. The columns 37 of the footrest 20 whose four angles are sheathed with bolts 34 are inserted in corresponding desk/chair bases 9. The upper ends of the two chair bases 9 have the same size as the springs 35 and the lower ends are inserted in the apertures (big at the upper portion and small at the lower portion) having the same size as the bolts 34. The upper ends of the springs 35 are against the bolts 34 and the lower ends are on the platform between the upper section and the lower section. The footrest seat 58 is disposed on the two front chair legs. The two angles (above the columns 37) of the chair footrest 320 adjacent to one end of the chair are respectively disposed with an aperture and connected with a tube, which are fixed to the two front chair legs with the footrest seat 58. If the footrest is used as the footrest seat 58 and place the spring type footrest in a rectangular square (the length and width are defined by feet) in the middle of the footrest seat 58, the footrest under pressure will be parallel with the footrest seat 58. As an improvement, the layer covers and the spring type footrest can be combined together to be disposed in the desk and chair. The layer covers are placed in a layer box 68, which is connected with the upper portion of the spring type footrest. The spring type footrest is disposed on the chair base 9, which extends 1/2 or half of the chair length. The front and rear bottoms of the chair base 9 are respectively disposed with wheels 11 to fit with the desk that is either fixed to the ground or disposed on the connecting bracket 71. The layer cover between the left and right chair legs matches with the chair and the desk is applicable to a plurality of chairs. With respect to the layer box 68, the layer cover is mounted from the left and right sides of the footrest and the baffle is mounted at the rear end of the layer cover. The layer box 68 can be disposed on the connecting bracket 71 or the track 30. Use a hinge to connect the rear upper end of the layer box 68 to the front of the chair front legs of the connecting bracket 71. The front two upper ends of the layer box 68 extend to the left and right sides with a butt plate. The butt plate is either on the connecting bracket 71 or the track 30. The chair fits with the desk that is fixed on the connecting bracket 71. The chair is fixed at the rear of the connecting bracket 71. The desk whose front and rear legs are disposed with wheels 11 and desk basetops 10 is placed on the connecting bracket 71 or the track 30. The relative outer lower ends of the desk legs are connected with the upper section of a flat bar 73. The relative inner lower ends of the lower section of the flat bar 73 are connected with the longitudinal layer cover 22 and float under the desk legs. The front and rear bottoms of the chair base 9 are respectively disposed with wheels 11 to fit with the desk that is fixed to the rear of the connecting bracket 71.

[0068] As shown in FIGS. 14-16, the lower portions of the desk legs are moveably disposed with a transversal or longitudinal layer cover 22. The underside of the bottom strip 23 of the transversal layer cover 22 is connected with the upper end of the columns 37 of the spring type footrest. The spring type footrest uses the two desk bases 9 whose front and rear sides are disposed with wheels 11 as the footrest seat 58. The desk footrest 20 that fits with the transversal layer cover 22 is disposed in a moveable cover 76. The width of the moveable cover 76 equals to the width between the front and rear sides (including the front and rear desk legs) of the transversal layer cover 22 and the length of the moveable cover equals to the length between the left and right desk legs. The inward recess at the opposite sides of the left and right moveable cover 76 is formed by vertical plates, upper/lower strips and front/rear baffles. The front of the recess is disposed with a convex plate 78 at the left and right legs. The convex plate is then equipped with a spring. Between the left and right desk legs, the rear of the recess is sheathed with the desk footrest 20 whose width equals to the length of the desk leg. The shaft passes through the aperture, the spring and the convex plate 78 that are in the recess of the desk footrest 20 to fix the desk footrest to the center of the front and rear baffles of the recess. The upper and lower portions of the front section of the recess are attached by the connecting plate 26 as a whole. Because the desk footrest 20 is extendable and the desk can move

close to the chair, the leg cover opening 85 is not required. The middle of the two desk bases 9 and the connecting plate 26 in the middle of the desk bases 9 are disposed with a lock 79. An aperture 232 in the middle of the left and right sides of the long-strip plate 82 of the lock 79 is moveably connected with the corresponding portion of the connecting plate 26 and the aperture 232 is used as the centre of circle to the bottom of the strips 23 at the middle of the front and rear desk legs as an arc edge 81. From the aperture 232 on a long-strip plate 82 to one side of the chair at one end of the arc edge 81 is connected with an acute angle plate that is shorter from the aperture 232 to the arc edge 81. The other end of the acute angel plate (including the centre of circle to the long-strip plate 82) having the same length as the acute angle plate has a side edge facing downwards (90°). When a user kicks the side edge of the other end of the long-strip plate 82 by feet to make it engage with the side of one end of the connecting plate 26, the arc edge 81 at the two ends of the long-strip plate 82 is just under the left and right strips 23, and the lower end of the column 37 under pressure cannot reach to the ground. When a user kicks the side edge of the acute angle plate by feet to make it engage with the side of one end of the connecting plate 26, the arc edge 81 at the two ends of the long-strip plate 82 moves to the front and rear inner sides of the left and right strips 23, and the lower end of the columns 37 under pressure can reach to the ground. The upper portion of the chair legs are further equipped with the longitudinal layer cover 22 and the flat square 182. Furthermore, it is possible to make apertures at the front and rear of the bottom strip 23 to the chair. Then use a reversed T-shaped pin to fasten from bottom to top and rotate 90 degree to place the pin on a reversed hook at the L-shaped opening under the strip 23.

[0069] As shown in FIG. 20, on a height-fixed desk and chair is provided with a maximum height and space 38 for high school students or tall individuals. At the distance that desk moves close to the chair to meet the requirement for correct sitting position, a person sits on the chair having the corresponding height, the back is against the chair back 17, the head, chest and abdomen are against the desk backrest 21, the elbows are placed on the desktop having the corresponding height or on the elbow plate 6. From the lower ends (the desk bottom 10 and lower part of wheels 11) to the upper ends of the desk/chair legs 8 are connected with at least one footrest. In the 1/4 point from the lower end of the desk and chair to the maximum height is moveably connected with the chair footrest 320. The width of the chair footrest 320 is the width of the desk and chair and the length of the chair footrest is the maximum length when the desk and chair are separate. At that point, the footrest can be placed on the ground or on a desk support plate 60 or on the connecting bracket 71 or can move in the lay cover. The footrest and the support plate 60 can be adjusted up and down by the bolts 34 of the positional adjustment holes 32.

[0070] As shown in FIG. 19, with respect to the posture-correcting device and the mechanism for fixing the posture-correcting device, on the height-unadjustable desk and chair is disposed with a maximum height and space 38 for high school students or high individuals. At the distance that desk moves close to the chair to meet the requirement for correct sitting position, a person sits on the chair having the corresponding height, the back is against the chair back 17, the head, chest and abdomen are against the desk backrest 21, the elbows are placed on the desktop having the corresponding height or on an elbows plate 6, and one or more footrests are disposed at the place where the feet are placed. In the 1/4 point from the lower end of the desk and chair to the maximum height is moveably connected with the chair footrest 320. The width of the chair footrest 320 is the width of the desk and chair and the length of the chair footrest is the maximum length when the desk and chair are separate. At that point, the footrest can be placed on the ground or on a desk support plate 60 or on the connecting bracket 71 or can move in the lay cover. The footrest and the support plate 60 can be adjusted up and down by the bolts 34 of the positional adjustment holes 32. The footrest is covered in the layer cover. The positional adjustment holes 32 fit with each layer distance of the layer covers. The chair footrest 320 on the chair legs fits with the layers of the longitudinal layer cover 22 at the same level of the lower portion of the desk legs. The chair surface fit with the layer covers on the chair legs. The front and rear of the two desk bases 9 are disposed with the wheels 11.

[0071] As shown in FIGS. 1, 9, and 25, the footrest or the support plate 60 is disposed with the leg cover opening 85 or the leg cover hole, or under the footrest or the support plate 60 is disposed with a leg space 87. The width of the leg cover opening 85 of the desk footrest 20 close to the chair is a little more than the width of the left and right chair front legs or equal to the width between the left and right front legs or the chair box 12. The front and rear of the desk come close to the maximum of one or two vertical rectangle or a transversal rectangular opening. The leg cover opening 85 fits with the leg cover hole. The leg cover hole which is at the front (or slightly at the rear side) of the desk footrest 20 fits with the leg cover opening 85 at the rear of the desk footrest. The width of the leg cover hole equals to the width of the leg cover opening 85 and the length is slightly longer than the length between the front and rear of the front leg. The shape is one or two square, rectangle or circle or a transversal rectangular hole or opening. The leg space 87 is at the bottom of the desk footrest 20. The height of the leg space is slightly higher than or as high as the chair base 9 and the width is slightly wider than the chair base 9 or comprises the two chair bases 9. The length of the leg space is in the space of two vertical cuboids or a big transversal flat cuboid of the desk footrest 20 when the chair base 9 is sheathed into the desk footrest 20 to the limit. The leg cover opening 85 and the leg cover hole on

the support plate 60 or the leg space 87 under the support plate are similar to the desk footrest 20. In the invention, in order for the feet to be placed on the footrest, the footrest is required to be wider. If the chair has single left and right legs, the footrest 20 is required to have the leg space 87 to be covered in the chair base 9. As shown in FIG. 31, in order for the desk and chair legs to be sheathed together, the desk footrest 20 is disposed with left and right leg cover openings 85.

[0072] The desk 1 is disposed with the desk backrest 21. The desk backrest 21 comprises a bracket body at the rear of the desk where a mounting bracket 90 is disposed. The mounting bracket 90 is on the desk or on the base plate 91 at the upper end of the desk box. An upper adjustable plate 98 is inserted into a traversal slot 67 on the desktop or the base plate 91, which is disposed at the bottom of the desktop 3 or above or under the base plate 91. The desktop 3 or the base plate 91 can be used as a slot plate 96 or upper plate 97.

[0073] As show in FIGS. 1-16, the lower rear end of the desktop 3 is moveably connected with the rear upper end of the desk. The desk having the desk backrest 21 is disposed with the desktop lifting mechanism. The desktop lifting mechanism is placed in the middle of the desk box baseplate 13 and the two sides of the desktop lifting mechanism are fixed with vertical clamp plate 101. The vertical clamp plates are used to clamp a pumpkin-seed-shaped lifting plate 102 of the desk box baseplate 13. The desk box side plates 16 whose left and right lifting plates 102 are disposed at the inner sides of the desk box and which are used as the vertical clamp plate 101 are clamped by the relative inner sides of the vertical clamp plate 101. The rear upper portion of the vertical clamp plate 101 is moveably connected with the corresponding part of the lifting plate 102. The rear top end of the lifting plate 102 is moveably connected with the front end (with the holes 32 and bolts 34) of a secondary connecting plate 103. The rear of the secondary connecting plate 103 is placed on a raised edge 104 at the rear edge of the adjustable baseplate 89 and the raised edge extends out of the adjustable baseplate. The lower adjustable plate 99 that is moveably connected with the lower end (slightly at the upper position) of the sternal/ventral plate 178 is moveably connected with a step 105 and a flat plate 106 on the secondary connecting plate 103 as well as a magnet 57 that is disposed in the middle of the raised edge 104 of the adjustable baseplate 89. The front ends of the left and right lifting plates 102 are connected with 1-2 connecting plate 26. As shown in FIGS. 43-44 and 47, the bottom of the desk box baseplate 13 is reversely disposed with a spring adjustment element. A reversed hanger plate 107 of the spring adjustment element is in the middle of the left and right front ends. The reversed hanger plate is moveably connected with the front end of a longitudinal plate 261 and 1-2 columns 83 stand on the rear front end or slightly inner position of the reversed hanger plate. The spring 35 on the column 83 supports the desk box baseplate 13 and is against the longitudinal plate 261. The column 83 passes through the hole 32 on the desk box baseplate 13. The upper end of the column is sheathed with a hanger plate whose diameter is larger than that of the column 83 and is moveably hanged on the desk box baseplate 13 to be parallel with the upper portion of the adjustable baseplate 89. Alternatively the longitudinal plate 261 is placed on the reversed hook at the bottom of the column. At the corresponding place of the secondary connecting plate 103 is disposed with an aperture to fit with the column 83. In addition, the upper arc of the lifting plate 102 is moveably connected with the magnet that is disposed at the bottom of the desktop.

[0074] As shown in FIGS. 31-41, the desk 1 equipped with the desktop lifting mechanism is moveably connected with a bookrack 109. On a bookrack seat 110 at the front end of the lifting plate 102 is moveably connected with 1-2 frame tubes 111 in the transversal direction. The upper end of the frame tube 111 vertically passes through and extends over the top of the desktop. The bookrack 109 is composed of the book placing board 115 and 1-2 support tubes 112 that are moveably connected at the rear of the bookrack. The book placing board 115 is disposed with a book holding groove 116 and the lower end of the book placing board is connected with a book baffle. The support tube 112 of the bookrack 109 and the frame tube 111 are moveably sheathed together. The frame tube 111 on the desktop is sheathed with a moveable pad or the lower end of the support tube 112 is connected with a circular pad. The arc-shaped angle at the lower end of the book placing board 115 attracts with the forward and backward magnets on the desktop. The bookrack 109 can be flat or inclined along with the desktop lifting mechanism and the book placing board 115 always remains the optimal distance and angle with eyes. The left and right sides of the book placing board 115 indirectly attracts with the opened book by magnet. Furthermore, for the purpose of storage, it is possible to mount upper and lower moveable connecting mechanisms at the front end of the lifting plate 102 or on 1-2 bookrack seats 110 of the connecting plate 26. One end of the lower moveable connecting mechanism is moveably connected with the lifting plate 102 (connecting plate 26) in the longitudinal direction. The frame tube 111 can be taken out from the desktop and inclinedly against a bracket or the connecting plate 26 of the desk box front plate 15. The other end of the upper moveable connecting mechanism is moveably connected with the lower end of the frame tube 111 in the transversal direction and is rotatable back and forth. The frame tube 111 can vertically extends over the top of the desktop. The book placing board 115 and the support tube 112 are disposed with a clamp and a storage slot.

[0075] As shown in FIGS. 1-2 and 12, the desktop is disposed with the desktop lifting mechanism, which is at the upper and lower sides in the transversal direction of the length of a lifting adjustment plate 126. One side is parallel and the other side is inclined. On the lifting ad-

justment plate 126 is disposed with the adjustable slot 94, which is parallel with the parallel edge of the lifting adjustment plate 126. The lifting adjustment plate 126 is fixed on the desk box side plate 16 by bolts 34 via the adjustable slot 94. Furthermore, the adjustable slot 94 parallel to the lifting adjustment plate 126 can be transversally disposed at the corresponding position of the desk box side plate 16. In the middle of the transversal adjustable slot 94 is disposed with a vertical slot. The lifting adjustment plate 126 is sheathed on the desk box side plate 16 by bolts 34 via the adjustable slot 94.

[0076] As shown in FIG. 1-25, the chair 2 is on the ground. The front of the desk is disposed with the wheel 11 and the rear of the desk is disposed with the desk base-top 10. Alternatively, the front and rear of the desk are both disposed with the wheels 11, or the desk is fixed on the ground, or the front and rear of the chair are both disposed with the wheels 11. The chair is fixed on the ground at the inner side of the two parallel tracks 30 or close to the inner side of the two tracks 30 or on the tracks 30. The desk is on the two tracks 30 or close to the outer side of the tracks 30 or on the ground at the outer side of the tracks 30. The front of the desk is disposed with the wheel 11 and the rear of the desk is disposed with the desk base-top 10, or the front and rear of the desk are both disposed with the wheels 11, or the desk is fixed on the ground at the outer side of the two parallel tracks 30 or close to the outer side of the tracks 30 or on the tracks 30. The chair is on the two tracks 30 or close to the inner side of the track 30 or on the ground at the inner side of the track 30. The chair is disposed on the track 30 of a desk/chair holder 130 or of a double-layer desk/chair holder 131 or disposed on the connecting plate 26. The desk is disposed on the track 30 at the front of the chair, the front of the desk is disposed with the wheel 11, and the rear of the desk is disposed with the desk base-top 10 or both the front and rear of the desk are disposed with the wheels 11. Alternatively, the desk is disposed on the track 30 of the desk/chair holder 130 or of the double-layer desk/chair holder 131 or disposed on the connecting plate 26. The chair is disposed on the track 30 at the rear of the desk and both the front and rear of the chair are disposed with the wheels 11. The desk/chair holder 130 is a frame composed of one or more pairs of longitudinal tracks 30 and two or more transversal connecting plates 26, or the double-layer desk/chair holder 131 is formed by connecting the upper and lower frames. Under the desk/chair holder 130 and the double-layer desk/chair holder 131 are disposed with support legs 136 or the wheels 11. The desk/chair holder 130 and the double-layer desk/chair holder 131 can be disposed with one or more sets or one or more rows of desks and chairs in the longitudinal and transversal directions, respectively. The desks and chairs are not against one another.

[0077] As shown in FIG. 17, the longitudinal layer cover 22 and the chair 2 are moveable back and forth along the track 30, which turn upwards to lean against the desk/chair holder 130, or the front end of the desk/chair holder 130, or the connecting plate 26.

[0078] The lower sections of the chair legs 8 can be omitted. It is only required to mount the upper sections of the chair legs on the desk/chair holder 130, or the inner sides of the tracks 30 and the connecting plate 26.

[0079] One end of the desk/chair holder 130 of the bionic and posture-correcting desk and chair is disposed with a frame head 141, or the driver seat is combined with the chair 2 as a whole.

[0080] As shown in FIGS. 1-25, the chair back 17 is moveably connected with the desk backrest 21 in an indirect way. The chair back 17 is moveably connected with the upper section of the chair back support 18 by bolts 34 via the positional adjustment holes 32 on the chair back support 18. The chair back 17 is disposed with a willow backrest 135. The pillow backrest 135 is covered by a pillow 137 and provides support 176 for the waist. The lower end of the pillow backrest 135 can be inserted in the chair back support 18 or a storage tube 138 at the rear of the chair legs. The chair box 12 comprises a cover plate, a bottom plate, left and right side plates 16, a rear block plate 74, and chair box door 140.

[0081] When the desktop is flat, the user is "clamped" in the middle of the desk backrest 21 and the chair back 17 to maintain the correct "forward sitting position" and "backward sitting position" or the sitting position in between at all times, and meanwhile the sitting positions can be easily adjusted or changed. The book placing board 115 can be pulled or pushed forwards or backwards and is moveable up and down the frame tube 111 together with the support tube 112. The book placing board 115 maintain the optimal distance and angle with eyes. At this point, the lower adjustable plate 99 is moveable along the step 105 of the secondary connecting plate 103. When the desk backrest 21 leans forwards to the maximum limit of the correct "forward sitting position", the lower adjustable plate 99 will fall from the step 105 to the flat plate 106 underneath. The end of the lower adjustable plate 99 will be against the front of the secondary connecting plate 103 at the front of the flat plate 106. At this point, it is the fixed and correct "forward sitting position". If the user uses the study position with the inclined desktop, when the user uses his elbows to press the elbow plate 6 and uses his abdomen to act on the sternal/ventral plate 178, the secondary connecting plate 103 will move forwards under the effect of the adjustable baseplate 89. The end of the secondary connecting plate 103 will be naturally placed in the inner side of the raised edge 104 of the adjustable baseplate 89 and against with each other. The front end of the lifting plate 102 will be gradually raised up and stop after it pushes the desktop to get the required inclined state. The support tube 112 is moveably connected with the frame tube 111 and goes up with front end of the lifting plate 102. The lower end of the book placing board 115 moves forwards on the desktop and remains the optimal distance and angle with eyes. The front end of the lower adjustable plate 99 is moveable along the flat plate 106 and the raised edge

104. At this point, the user can lean forwards or backwards with the desk backrest 21 and the chair back 17, and maintain the correct "forward sitting position" and "backward sitting position" or the sitting position in between at all times, and meanwhile the sitting positions which are comfortable and unlikely to cause fatigue can be easily adjusted or changed. It should be noted that during the process when the secondary connecting plate 103 moves towards on the desktop under the effect of the lower adjustable plate 99, the user can use his elbows to press the elbow plate 6 and uses his abdomen to push the sternal/ventral plate 178 to maintain balance. The desktop can be easily made with different inclined angles for correct "backward sitting position". If the user intends to use the study position with the flat desktop again, he can use his elbows to press the elbow plate 6 and use his abdomen to act on the sternal/ventral plate 178, and at the same time use one feet that is on the desk footrest 20 to kick the rear of the lower longitudinal plate 261 to enable the column 83 to push the secondary connecting plate 103 to the top of the raised edge 104 of the adjustable baseplate 89. Afterwards, when the users uses his elbows to press the elbow plate 6 to allow the desktop to slowly drop, he uses the chest to act on the sternal/ventral plate 178 of the desk backrest 21 to allow the desk backrest 21 to be back to the position for correct "forward sitting position". The desktop will be back to the flat position. The support tube 112 is sheathed with the frame tube 111 and perpendicularly drops with the desktop. The lower end of the book placing board 115 moves backwards and remains the optimal distance and angle with eyes. If the user intends to lean forwards or backwards, he can use his feet to kick the rear of the longitudinal plate 261 to allow the column 83 to pass through the aperture on the secondary connecting plate 103 and push the lower adjustable plate 99 from the flat plate 106 to the step 105 of the secondary connecting plate 103 under the condition that the end of the lower adjustable plate 99 is moveable on the step 105 of the secondary connecting plate 103. In this way, the user will always be at the correct "forward sitting position" or "backward sitting position" or any position in between, and meanwhile the sitting positions can be changed at will. If the user intends to change the distance between the desk and the chair or have a rest, what he needs to do is to raise his feet and push or pull the desk or chair once.

[0082] On the chair back support 18 is disposed with the chair back support adjustment mechanism. The chair back support adjustment mechanism divides the left and right chair back supports 18 into upper and lower chair back supports. The upper chair back support is covered in the lower chair back support. The relative inner sides of the upper ends of the two upper chair back supports are moveably connected with the chair back 17. The lower sections of the two upper chair back supports are fixed with a resilient adjustment pin. The resilient adjustment pin is a resilient strip (piece) and is in a bended shape (or the circular bended shape). The end of the bended strip is disposed with 1-2 projected pins, passing through the aperture on the inner wall of the upper chair back support and fit with the positional adjustment holes of the lower chair back support. The two ends of the chair back 17 are moveably connected with the upper chair back support and can be adjusted up and down in the lower chair back support. When a user sits on the chair, he withdraws his feet, uses his hands to pull or push the desk or chair to the appropriate distance, allows his waist to lean against the chair back 17 and chest/abdomen lean against the sternal/ventral plate 178, uses his feet to stamp on the footrest hardly to allow the desk to be securely connected with the chair as a whole. Place the two elbows on the desktop or on the elbow plate 6, and place the chin on the chin pad of the desk backrest. When the user bend over or lean behind, the desk backrest 21 will move with the chair back 17 and the user will be "clamped" in the middle. It allows the user to maintain the correct "forward sitting position" and "backward sitting position" or the sitting position in between at all times, and meanwhile the sitting positions which are comfortable and unlikely to cause fatigue can be easily adjusted or changed. In addition, the book placing board 115 is adjustable back and forth to maintain the optimal distance and angle with eyes. At this point, the lower adjustable plate 99 is on the adjustable baseplate 89 to move back and forth. When a user leans forwards, the chin is on the chin pad and the neck becomes shorter. When the user lean backwards, the neck become longer. Consequently, the user is required to press the adjustment button on the desk backrest 21 when to change the sitting position. In that case, the adjustable support can be extended and the chin can be placed on the chin pad.

[0083] The middle portion of the desk footrest 20 is disposed with a foot button 235. The lower portion of the foot button 235 is connected with a foot block 174 by the springs 35. When the desk is unused, the springs 35 act on the foot block 174 to leave the ground to make the desk move. When the desk is in use, the springs 35 act on the foot block 174 to be tightly against the ground because feet are placed on foot button 235. Alternatively, the above structure can also be used for chair footrest 320.

[0084] The desk backrest 21 used in the invention can also be replaced by the bionic and posture-correcting backrest for study described in the patent 2009201681014.

Claims

1. A bionic and posture-correcting desk and chair, comprising a separate or combined desk and chair or stool, the bottom of desk legs being connected with a footrest and a chair back being connected between supports of the chair back, wherein
   at the upper and lower parts of the desk and chair are disposed with a posture-correcting device and a

mechanism for fixing the posture-correcting device; the posture-correcting device allows users to maintain the correct "forward sitting position" and "backward sitting position" or a sitting position therebetween all the time; and
a desktop lifting mechanism is disposed between the desktop and a desk drawer for adjustment of the height and inclination of the desktop.

2. The bionic and posture-correcting desk and chair of claim 1, wherein
the desktop lifting mechanism is a lifting mechanism disposed between a desktop and a bookrack for synchronous lifting and lowering the desktop and bookrack;
the lifting mechanism comprises a vertical slot disposed at the relative inner sides of the desk's left and right front legs;
the relative inner sides of the upper ends of the left and right supports are attached by a vertical plate;
the supports connect the vertical plate and its two ends are moveable up and down the vertical slot and the inner legs;
the upper ends of the two supports are moveably connected with the front end of the desktop;
the middle of the left and right sides of the vertical plate projects upwards and passes through left and right long-strip apertures on the desktop to be parallel with the desktop; on the boss portion is disposed with 1-2 bookrack support holes; inside the support holes is disposed with a moveable pin that fits with the recess on a support tube of the bookrack;
the moveable pin has a bow-shaped leaf spring or an aperture on the wall of the support hole; inside the aperture is disposed with a smaller boss;
the rear end of the boss is connected with a column, whose rear end is against a spring; at the rear bottom of the desktop is disposed with a position adjusting tooth that fits with an edge angle of the upper end of the desk box.

3. The bionic and posture-correcting desk and chair of claim 2, wherein
the lifting mechanism comprises a rear bottom of the desktop moveably connected with the rear upper end of the desk box;
the rear front end of the desktop is moveably connected with the vertical plate;
the middle portion of the left and right sides of the vertical plate projects upwards and passes through the long-strip apertures on the desktop to be parallel with the desktop; on the boss portion is disposed with 1-2 bookrack support holes; inside the support hole is disposed with a moveable pin that fits with a support tube of the bookrack; from the top to the bottom of the desk boxes are respectively disposed with a control groove inclining backwards;
the control groove and column underneath are sheathed together; the rear of the vertical plate is moveably connected with a support pillar;
the lower left and right edge angles of the support pillar fit with the arc-shaped teeth of a desk box baseplate.

4. The bionic and posture-correcting desk and chair of claim 2, wherein
the lifting mechanism comprises a rear bottom of the desktop moveably connected with the rear upper end of the desk box;
the middle portion, from the front end of the desktop, is disposed with a long-strip aperture; inside the aperture is provided with a moveable bracket, whose opposite left and right ends extend with a shaft and whose middle portion is connected by front and rear plates;
the left and right sides of the moveable bracket are respectively disposed with a bookrack support hole;
in the middle of the moveable bracket is disposed with an adjustable tube hole; at the bottom of the front end of the desk box is moveably connected with an adjustable tube that is sheathed with an adjustable tubular pile;
the upper end of the adjustable tube extends to be parallel with the desktop through the adjustable tube hole on the moveable bracket;
the upper end of a connecting rod in the adjustable tube is connected with a button and the lower end thereof is connected with an adjustable pin; at the connection point between the moveable bracket and the adjustable tube is disposed with a vertical slot and a cross rod is used to connect the moveable bracket and the adjustable tube as a whole.

5. The bionic and posture-correcting desk and chair of claim 1, wherein on the desk footrest or the chair footrest provided with wheels is disposed with a lock mechanism, which is used to keep the desk and chair steady relative to the ground.

6. The bionic and posture-correcting desk and chair of claim 5, wherein the desk footrest or the chair footrest is disposed with a foot button as the lock mechanism, whose bottom is connected with foot block by a spring.

7. The bionic and posture-correcting desk and chair of claim 1, wherein
one or more footrests are disposed at the place where the feet are placed;
from the lower ends of the desk bottom and lower part of wheels to the upper ends of the desk/chair legs are connected with at least one footrest. The footrest is directly or indirectly placed on the ground or on a track or covered in a desk and chair cover to float above a connecting bracket;
the desk footrest has the same width as the desk

and is fixed to the desk legs by bolts via positional adjustment holes;
at left and right ends of the footrests are provided with strip pads, which are fixed to the desk legs by bolts via positional adjustment holes.

8. The bionic and posture-correcting desk and chair of claim 7, wherein
the footrest is disposed on a height-adjustable desk and chair having left and right legs;
the width of the footrest is the width of the desk legs and the footrest is fixed on the desk legs; alternatively, the footrest is disposed on a height-unadjustable desk and fixed on the desk legs;
the rear ends of the chair beams are moveably connected with the lower ends of the chair back supports; between the lower portions of the chair beams and chair bases are connected with lower chair legs;
the lower ends of the upper chair legs are inserted in the upper ends of the lower chair legs on the chair beams and fixed;
the desk and chair legs comprise upper legs and lower legs and the upper ends of the two lower legs are connected together as a whole;
the lower ends of the two upper legs that are connected under the desk box and the chair beam are respectively inserted in the upper ends of the lower legs and fixed;
the rear end of the chair beam is moveably connected with the lower end of the chair back support;
the opposite outer sides of the front ends of chair armrests are respectively connected with an armrest plate;
the armrest plate is moveably connected with a moveable tube outwards;
the movable tube comprises an external tube and an internal tube;
the front end of the internal tube is moveably connected with the armrest plate and the rear end of the external tube is moveably connected with the chair back supports;
the front end and the bottom of the external tube are reversely disposed with a spring bolt;
the spring bolt fits with the positional adjustment holes at the front lower portion of the internal tube;
the rear section of the internal tube is disposed with an aperture;
the aperture moveably cooperates with an adjustable slot under the rear section of the external tube;
the chair back is moveable back and forth or fixed;
in addition, if the chair has four legs disposed at four sides, the chair having the chair base disposed between the left and right chair legs can be placed on the desk footrest having a leg cover opening and a leg cover aperture.

9. The bionic and posture-correcting desk and chair of claim 8, wherein
the desk and chair legs are disposed with layer covers;
the width of the layer cover is the length between the front and rear legs of the desk and chair and the length of the layer cover is the length between the left and right legs;
the layer cover is connected with the gap of one layer or multiple layers of at least two strips;
the outer sides of the left and right ends of the transversal layer cover, or the front and rear or one end of the longitudinal layer cover are separately connected with a baffle;
the strips are directly connected with the legs or the vertical plate having the same width as the two legs;
the left and right sides of the vertical plate cover the other two sides of the legs to form a recess/square tube/circular tube layer cover, which is fixed to the legs by the bolt via the positional adjustment holes or moveably covered on the legs;
a connecting plate is used to connect the two ends of the vertical plate; one end of the vertical plate is disposed with an aperture that fits with the corresponding boss of the footrest;
a flat square is disposed under the chair or the footrest; between the flat square and the vertical plate is disposed with a layer cover;
the layer cover, the long-strip aperture or pin head are sheathed together.

10. The bionic and posture-correcting desk and chair of claim 5, wherein
for the lock mechanism, the layer covers are placed in a layer box, which is connected with the upper portion of the spring type footrest;
the spring type footrest is disposed on the chair base, which extends 1/2 or half of the chair length;
the front and rear bottoms of the chair base are respectively disposed with wheels to fit with the desk that is either fixed to the ground or disposed on the connecting bracket;
the layer cover between the left and right chair legs matches with the chair and the desk is applicable to a plurality of chairs; with respect to the layer box, the layer cover is mounted from the left and right sides of the footrest and the baffle is mounted at the rear end of the layer cover;
the layer box can be disposed on the connecting bracket or the track; use a hinge to connect the rear upper end of the layer box to the front of the chair front legs of the connecting bracket;
the front two upper ends of the layer box extend to the left and right sides with a butt plate;
the butt plate is either on the connecting bracket or the track; the chair fits with the desk that is fixed on the connecting bracket;
the chair is fixed at the rear of the connecting bracket;
the desk whose front and rear legs are disposed with wheels and desk base-tops is placed on the con-

necting bracket or the track;
the relative outer lower ends of the desk legs are connected with the upper section of a flat bar;
the relative inner lower ends of the lower section of the flat bar are connected with the longitudinal layer cover and float under the desk legs;
the desk is moveable back and forth along the track.

11. The bionic and posture-correcting desk and chair of claim 5, wherein
the lower portions of the desk legs are moveably disposed with a transversal or longitudinal layer cover;
the underside of the bottom strip of the transversal layer cover is connected with the upper end of the columns of the spring type footrest;
the spring type footrest uses the two desk bases whose front and rear sides are disposed with wheels as the footrest seat; the desk footrest that fits with the transversal layer cover is disposed in a moveable cover;
the width of the moveable cover equals to the width between the front and rear sides of the transversal layer cover and the length of the moveable cover equals to the length between the left and right desk legs;
the inward recess at the opposite sides of the left and right moveable cover is formed by vertical plates, upper/lower strips and front/rear baffles; the front of the recess is disposed with a convex plate at the left and right legs;
the convex plate is then equipped with a spring; between the left and right desk legs, the rear of the recess is sheathed with the desk footrest whose width equals to the length of the desk leg; the shaft passes through the aperture, the spring and the convex plate that are in the recess of the desk footrest to fix the desk footrest to the center of the front and rear baffles of the recess;
the upper and lower portions of the front section of the recess are attached by the connecting plate as a whole; because the desk footrest is extendable and the desk can move close to the chair, the leg cover opening is not required;
the middle of the two desk bases and the connecting plate in the middle of the desk bases are disposed with a lock; an aperture in the middle of the left and right sides of the long-strip plate of the lock is moveably connected with the corresponding portion of the connecting plate and the aperture is used as the centre of circle to the bottom of the strips at the middle of the front and rear desk legs as an arc edge;
from the aperture on a long-strip plate to one side of the chair at one end of the arc edge is connected with an acute angle plate that is shorter from the aperture to the arc edge;
the other end of the acute angel plate having the same length as the acute angle plate has a side edge facing downwards of 90°; when a user kicks the side edge of the other end of the long-strip plate by feet to make it engage with the side of one end of the connecting plate, the arc edge at the two ends of the long-strip plate is just under the left and right strips, and the lower end of the column under pressure cannot reach to the ground;
when a user kicks the side edge of the acute angle plate by feet to make it engage with the side of one end of the connecting plate, the arc edge at the two ends of the long-strip plate moves to the front and rear inner sides of the left and right strips, and the lower end of the columns under pressure can reach to the ground; and
the upper portion of the chair legs are further equipped with the longitudinal layer cover and the flat square; furthermore, it is possible to make apertures at the front and rear of the bottom strip to the chair; then use a reversed t-shaped pin to fasten from bottom to top and rotate degree to place the pin on a reversed hook at the I-shaped opening under the strip.

12. The bionic and posture-correcting desk and chair of claim 5, wherein
on a height-fixed desk and chair is provided with a maximum height and space for high school students or tall individuals;
at the distance that desk moves close to the chair to meet the requirement for correct sitting position, a person sits on the chair having the corresponding height, the back is against the chair back, the head, chest and abdomen are against the desk backrest, the elbows are placed on the desktop having the corresponding height or on the elbow plate;
from the lower ends of the desk bottom and lower part of wheels to the upper ends of the desk/chair legs are connected with at least one footrest; in the 1/4 point from the lower end of the desk and chair to the maximum height is moveably connected with the chair footrest;
the width of the chair footrest is the width of the desk and chair and the length of the chair footrest is the maximum length when the desk and chair are separate;
at that point, the footrest can be placed on the ground or on a desk support plate or on the connecting bracket or can move in the lay cover; the footrest and the support plate can be adjusted up and down by the bolts of the positional adjustment holes.

13. The bionic and posture-correcting desk and chair of claim 5, wherein
on the height-unadjustable desk and chair is disposed with a maximum height and space for high school students or high individuals;
in the 1/4 point from the lower end of the desk and chair to the maximum height is moveably connected

with the chair footrest; the width of the chair footrest is the width of the desk and chair and the length of the chair footrest is the maximum length when the desk and chair are separate; at that point, the footrest can be placed on the ground or on a desk support plate or on the connecting bracket or can move in the lay cover;
the footrest and the support plate can be adjusted up and down by the bolts of the positional adjustment holes; the footrest is covered in the layer cover; the positional adjustment holes fit with each layer distance of the layer covers;
the chair footrest on the chair legs fits with the layers of the longitudinal layer cover at the same level of the lower portion of the desk legs; the chair surface fit with the layer covers on the chair legs;
the front and rear of the two desk bases are disposed with the wheels.

14. The bionic and posture-correcting desk and chair of any of claims 1-13, wherein
the footrest or the support plate is disposed with the leg cover opening or the leg cover hole, or under the footrest or the support plate is disposed with a leg space;
the width of the leg cover opening of the desk footrest close to the chair is a little more than the width of the left and right chair front legs or equal to the width between the left and right front legs or the chair box;
the front and rear of the desk come close to the maximum of one or two vertical rectangle or a transversal rectangular opening; the leg cover opening fits with the leg cover hole;
the leg cover hole which is at the front of the desk footrest fits with the leg cover opening at the rear of the desk footrest; the width of the leg cover hole equals to the width of the leg cover opening and the length is slightly longer than the length between the front and rear of the front leg; the shape is one or two square, rectangle or circle or a transversal rectangular hole or opening;
the leg space is at the bottom of the desk footrest; the height of the leg space is slightly higher than or as high as the chair base and the width is slightly wider than the chair base or comprises the two chair bases; the length of the leg space is in the space of two vertical cuboids or a big transversal flat cuboid of the desk footrest when the chair base is sheathed into the desk footrest to the limit;
the leg cover opening and the leg cover hole on the support plate or the leg space under the support plate are similar to the desk footrest; in the invention, in order for the feet to be placed on the footrest, the footrest is required to be wider; and
if the chair has single left and right legs, the footrest is required to have the leg space to be covered in the chair base; in order for the desk and chair legs to be sheathed together, the desk footrest is disposed with left and right leg cover openings.

15. The bionic and posture-correcting desk and chair of claim 1, wherein
the desk is disposed with the desk backrest;
the desk backrest comprises a bracket body at the rear of the desk where a mounting bracket is disposed;
the mounting bracket is on the desk or on the base plate at the upper end of the desk box; an upper adjustable plate is inserted into a traversal slot on the desktop or the base plate, which is disposed at the bottom of the desktop or above or under the base plate; and
the desktop or the base plate can be used as a slot plate or upper plate.

16. The bionic and posture-correcting desk and chair of claim 1, wherein
the lower rear end of the desktop is moveably connected with the rear upper end of the desk; the desk having the desk backrest is disposed with the desktop lifting mechanism;
the desktop lifting mechanism is placed in the middle of the desk box baseplate and the two sides of the desktop lifting mechanism are fixed with vertical clamp plate; the vertical clamp plates are used to clamp a pumpkin-seed-shaped lifting plate of the desk box baseplate;
the desk box side plates whose left and right lifting plates are disposed at the inner sides of the desk box and which are used as the vertical clamp plate are clamped by the relative inner sides of the vertical clamp plate; the rear upper portion of the vertical clamp plate is moveably connected with the corresponding part of the lifting plate;
the rear top end of the lifting plate is moveably connected with the front end of a secondary connecting plate; the rear of the secondary connecting plate is placed on a raised edge at the rear edge of the adjustable baseplate and the raised edge extends out of the adjustable baseplate;
the lower adjustable plate that is moveably connected with the lower end of the sternal/ventral plate is moveably connected with a step and a flat plate on the secondary connecting plate as well as a magnet that is disposed in the middle of the raised edge of the adjustable baseplate;
the front ends of the left and right lifting plates are connected with 1-2 connecting plate the bottom of the desk box baseplate is reversely disposed with a spring adjustment element; a reversed hanger plate of the spring adjustment element is in the middle of the left and right front ends;
the reversed hanger plate is moveably connected with the front end of a longitudinal plate and 1-2 columns stand on the rear front end or slightly inner position of the reversed hanger plate;

the spring on the column supports the desk box baseplate and is against the longitudinal plate; the column passes through the hole on the desk box baseplate; the upper end of the column is sheathed with a hanger plate whose diameter is larger than that of the column and is moveably hanged on the desk box baseplate to be parallel with the upper portion of the adjustable baseplate;
alternatively the longitudinal plate is placed on the reversed hook at the bottom of the column; at the corresponding place of the secondary connecting plate is disposed with an aperture to fit with the column.

17. The bionic and posture-correcting desk and chair of any of claims 1-13, wherein
the desk equipped with the desktop lifting mechanism is moveably connected with a bookrack;
on a bookrack seat at the front end of the lifting plate is moveably connected with 1-2 frame tubes in the transversal direction; the upper end of the frame tube vertically passes through and extends over the top of the desktop;
the bookrack is composed of the book placing board and 1-2 support tubes that are moveably connected at the rear of the bookrack; the book placing board is disposed with a book holding groove and the lower end of the book placing board is connected with a book baffle; the support tube of the bookrack and the frame tube are moveably sheathed together;
the frame tube on the desktop is sheathed with a moveable pad or the lower end of the support tube is connected with a circular pad; the arc-shaped angle at the lower end of the book placing board attracts with the forward and backward magnets on the desktop;
the bookrack can be flat or inclined along with the desktop lifting mechanism and the book placing board always remains the optimal distance and angle with eyes; the left and right sides of the book placing board indirectly attracts with the opened book by magnet; furthermore, for the purpose of storage, it is possible to mount upper and lower moveable connecting mechanisms at the front end of the lifting plate or on 1-2 bookrack seats of the connecting plate;
one end of the lower moveable connecting mechanism is moveably connected with the lifting plate in the longitudinal direction; the frame tube can be taken out from the desktop and inclinedly against a bracket or the connecting plate of the desk box front plate;
the other end of the upper moveable connecting mechanism is moveably connected with the lower end of the frame tube in the transversal direction and is rotatable back and forth; the frame tube can vertically extends over the top of the desktop; the book placing board and the support tube are disposed with a clamp and a storage slot.

18. The bionic and posture-correcting desk and chair of any of claims 1-13, wherein
the desktop is disposed with the desktop lifting mechanism, which is at the upper and lower sides in the transversal direction of the length of a lifting adjustment plate;
one side is parallel and the other side is inclined;
on the lifting adjustment plate is disposed with the adjustable slot, which is parallel with the parallel edge of the lifting adjustment plate;
the lifting adjustment plate is fixed on the desk box side plate by bolts via the adjustable slot; furthermore, the adjustable slot parallel to the lifting adjustment plate can be transversally disposed at the corresponding position of the desk box side plate; in the middle of the transversal adjustable slot is disposed with a vertical slot;
the lifting adjustment plate is sheathed on the desk box side plate via the adjustable slot.

19. The bionic and posture-correcting desk and chair of any of claims 1-13, wherein
the chair is on the ground; the front of the desk is disposed with the wheel and the rear of the desk is disposed with the desk base-top; alternatively, the front and rear of the desk are both disposed with the wheels, or the desk is fixed on the ground, or the front and rear of the chair are both disposed with the wheels;
the chair is fixed on the ground at the inner side of the two parallel tracks or close to the inner side of the two tracks or on the tracks;
the desk is on the two tracks or close to the outer side of the tracks or on the ground at the outer side of the tracks;
the front of the desk is disposed with the wheel and the rear of the desk is disposed with the desk base-top, or the front and rear of the desk are both disposed with the wheels, or the desk is fixed on the ground at the outer side of the two parallel tracks or close to the outer side of the tracks or on the tracks;
the chair is on the two tracks or close to the inner side of the track or on the ground at the inner side of the track;
the chair is disposed on the track of a desk/chair holder or of a double-layer desk/chair holder or disposed on the connecting plate;
the desk is disposed on the track at the front of the chair, the front of the desk is disposed with the wheel, and the rear of the desk is disposed with the desk base-top or both the front and rear of the desk are disposed with the wheels; alternatively, the desk is disposed on the track of the desk/chair holder or of the double-layer desk/chair holder or disposed on the connecting plate;
the chair is disposed on the track at the rear of the

desk and both the front and rear of the chair are disposed with the wheels;
the desk/chair holder is a frame composed of one or more pairs of longitudinal tracks and two or more transversal connecting plates, or the double-layer desk/chair holder is formed by connecting the upper and lower frames; under the desk/chair holder and the double-layer desk/chair holder are disposed with support legs or the wheels;
the desk/chair holder and the double-layer desk/chair holder can be disposed with one or more sets or one or more rows of desks and chairs in the longitudinal and transversal directions, respectively;
the desks and chairs are not against one another;
the wheels at the front end of the desk base are parallel with the desk base and the ground; the front end of the desk base is in the shape of an arc;
the lower sections of the chair legs can be omitted; it is only required to mount the upper sections of the chair legs on the desk/chair holder, or the inner sides of the tracks and the connecting plate.

20. The bionic and posture-correcting desk and chair of any of claims 1-13, wherein
the chair back is moveably connected with the desk backrest in an indirect way;
the chair back is moveably connected with the upper section of the chair back support by bolts via the positional adjustment holes on the chair back support; the chair back is disposed with a willow backrest;
the willow backrest is covered by a willow and provides support for the waist; the lower end of the willow backrest can be inserted in the chair back support or a storage tube at the rear of the chair legs; and
the chair box comprises a cover plate, a bottom plate, left and right side plates, a rear block plate, and chair box door.

21. The bionic and posture-correcting desk and chair of claim 20, wherein
on the chair back support is disposed with the chair back support adjustment mechanism; the chair back support adjustment mechanism divides the left and right chair back supports into upper and lower chair back supports;
the upper chair back support is covered in the lower chair back support; the relative inner sides of the upper ends of the two upper chair back supports are moveably connected with the chair back; the lower sections of the two upper chair back supports are fixed with a resilient adjustment pin;
the resilient adjustment pin is a resilient strip and is in a bended shape; the end of the bended strip is disposed with 1-2 projected pins, passing through the aperture on the inner wall of the upper chair back support and fit with the positional adjustment holes of the lower chair back support; the two ends of the chair back are moveably connected with the upper chair back support and can be adjusted up and down in the lower chair back support;
when a user sits on the chair, he withdraws his feet, uses his hands to pull or push the desk or chair to the appropriate distance, allows his waist to lean against the chair back and chest/abdomen lean against the sternal/ventral plate, uses his feet to stamp on the footrest hardly to sallow the desk to be securely connected with the chair as a whole; place the two elbows on the desktop or on the elbow plate, and place the chin on the chin pad of the desk backrest;
when the user bend over or lean behind, the desk backrest will move with the chair back and the user will be "clamped" in the middle; it allows the user to maintain the correct "forward sitting position" and "backward sitting position" or the sitting position in between at all times, and meanwhile the sitting positions which are comfortable and unlikely to cause fatigue can be easily adjusted or changed;
in addition, the book placing board is adjustable back and forth to maintain the optimal distance and angle with eyes; at this point, the lower adjustable plate is on the adjustable baseplate to move back and forth;
when a user leans forwards, the chin is on the chin pad and the neck becomes shorter;
when the user leans backwards, the neck becomes longer; consequently, the user is required to press the adjustment button on the desk backrest when to change the sitting position; in that case, the adjustable support can be extended and the chin can be placed on the chin pad.

22. The bionic and posture-correcting desk and chair of any of claims 1-13, wherein
the chair back support adjustment mechanism divides the left and right chair back supports into upper and lower chair back supports;
the upper chair back support is covered in the lower chair back support; the relative inner sides of the upper ends of the two upper chair back supports are moveably connected with the chair back;
the lower sections of the two upper chair back supports are fixed with a resilient adjustment pin;
the resilient adjustment pin is a resilient strip and is in a bended shape;
the end of the bended strip is disposed with 1-2 projected pins, passing through the aperture on the inner wall of the upper chair back support and fit with the positional adjustment holes of the lower chair back support;
the two ends of the chair back are moveably connected with the upper chair back support and can be adjusted up and down in the lower chair back support.

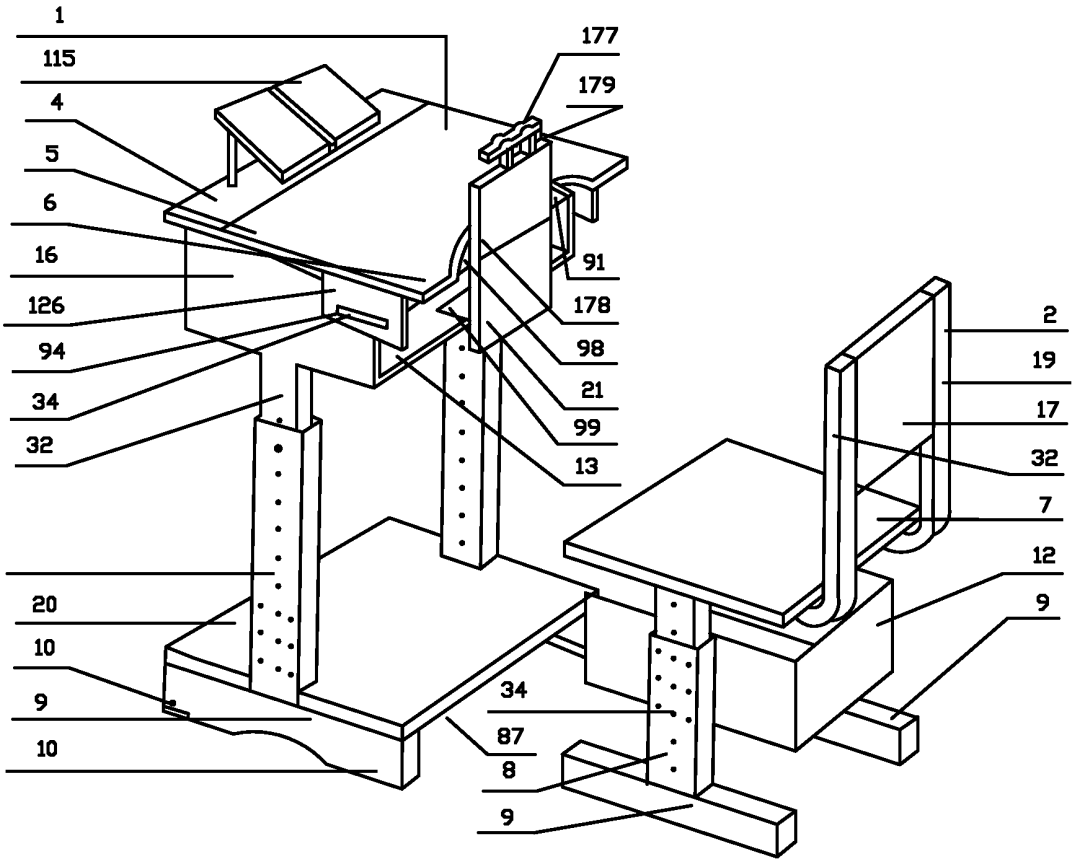
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FIG. 1

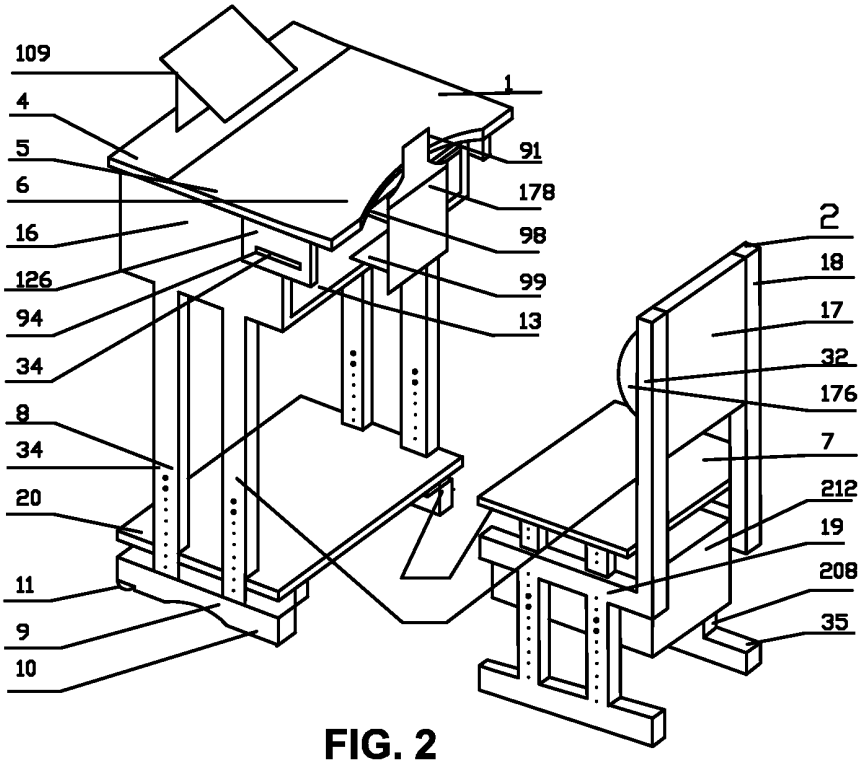
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FIG. 2

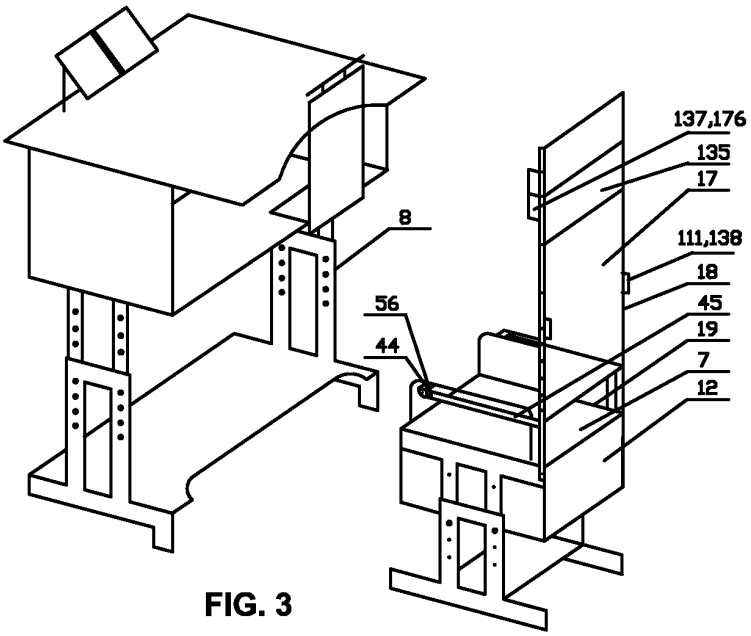

FIG. 3

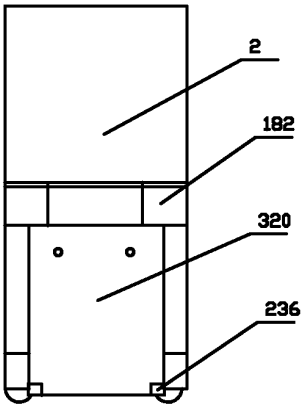

FIG. 6

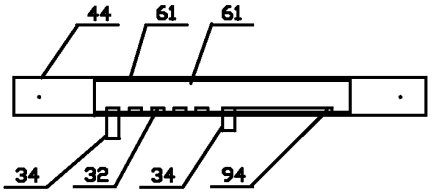

FIG. 4

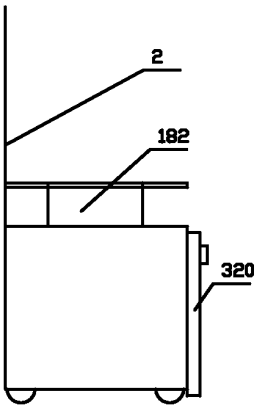

FIG. 7

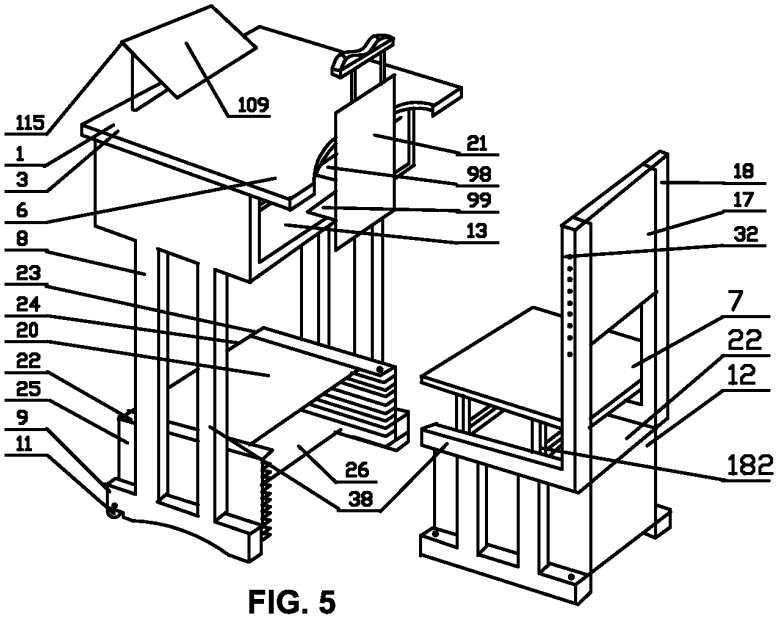

FIG. 5

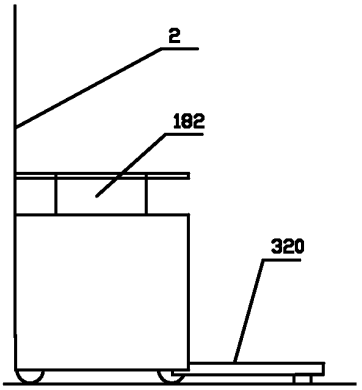

FIG. 8

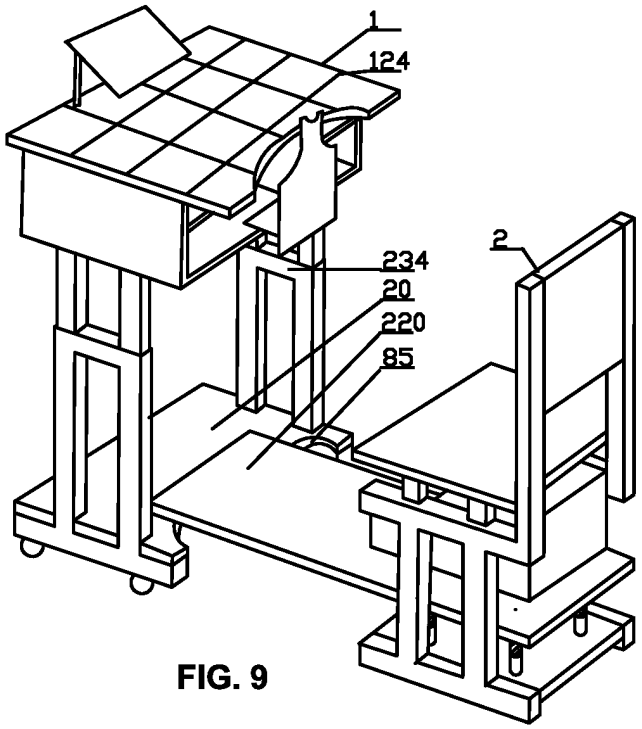

FIG. 9

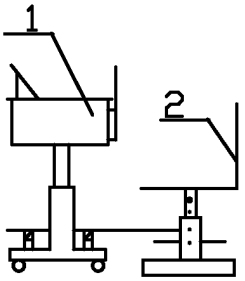

FIG. 10

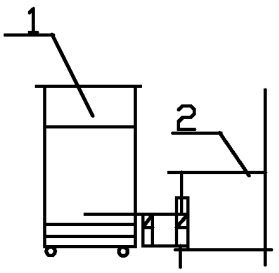

FIG. 11

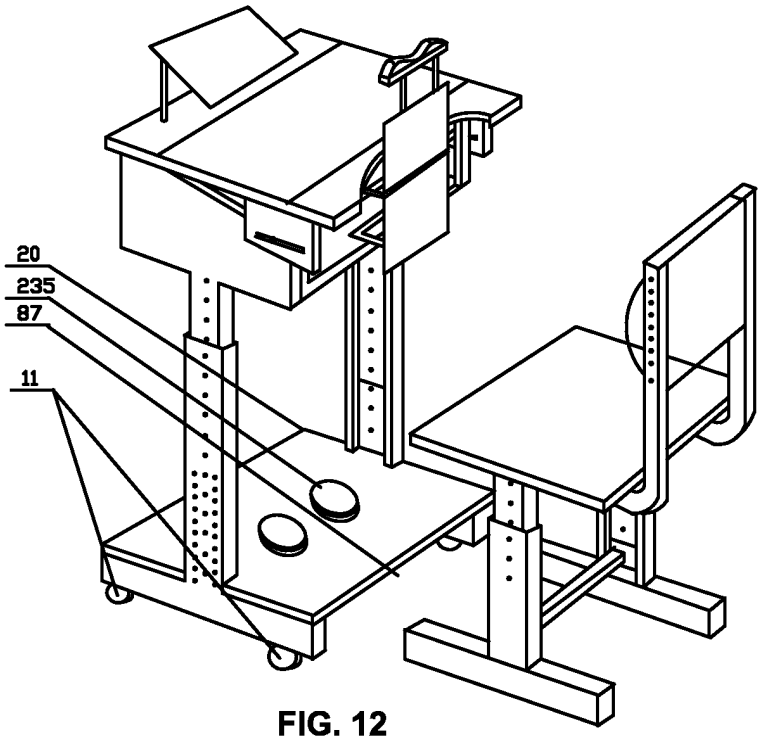

FIG. 12

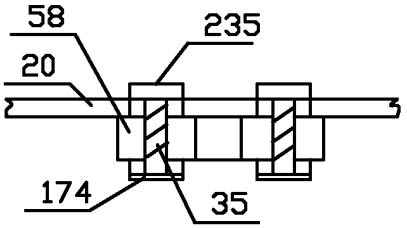

FIG. 13

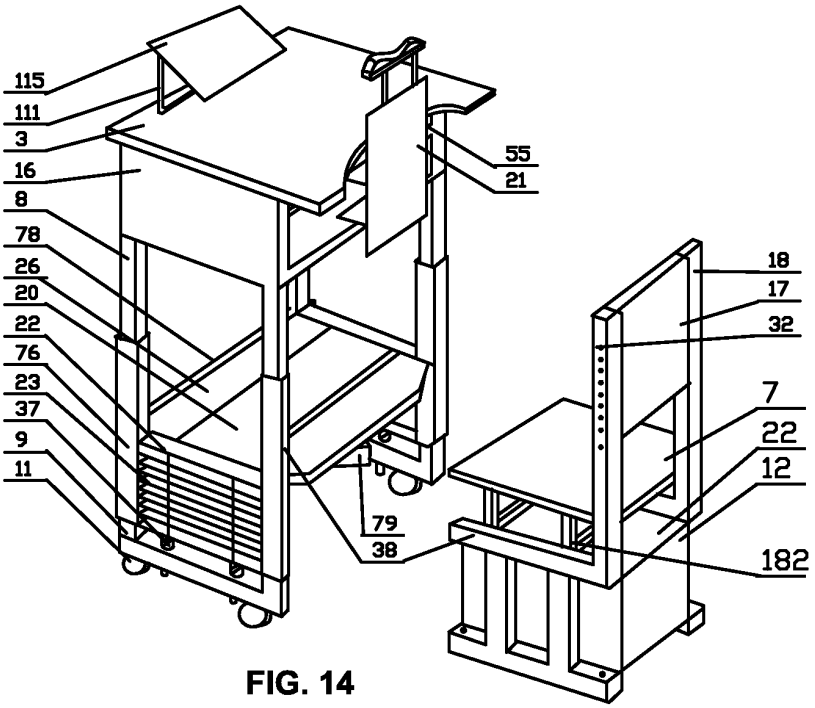

FIG. 14

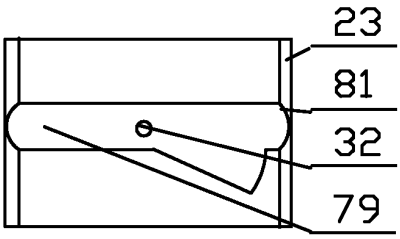

FIG. 15

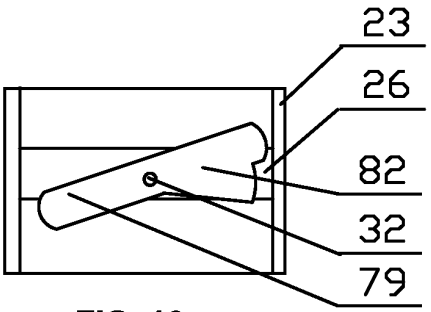

FIG. 16

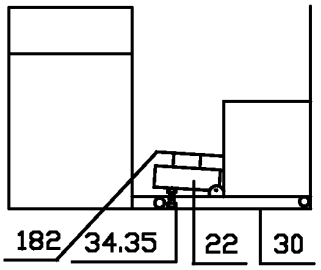

FIG. 17

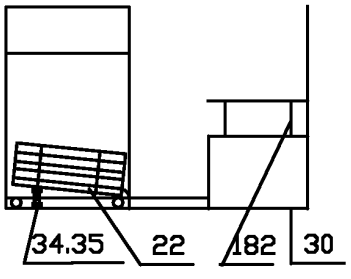

FIG. 18

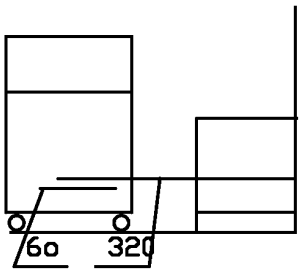

FIG. 19

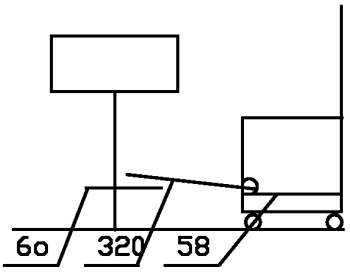

FIG. 20

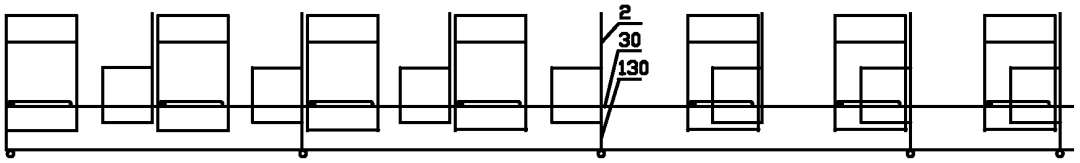

FIG. 21

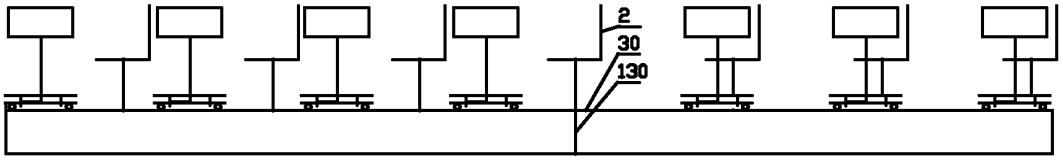

FIG. 22

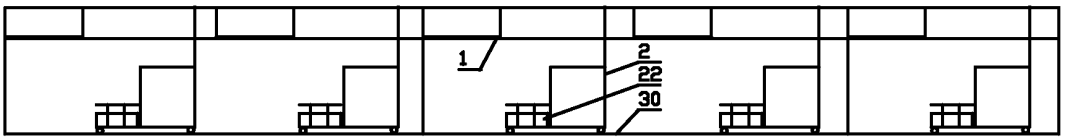

FIG. 23

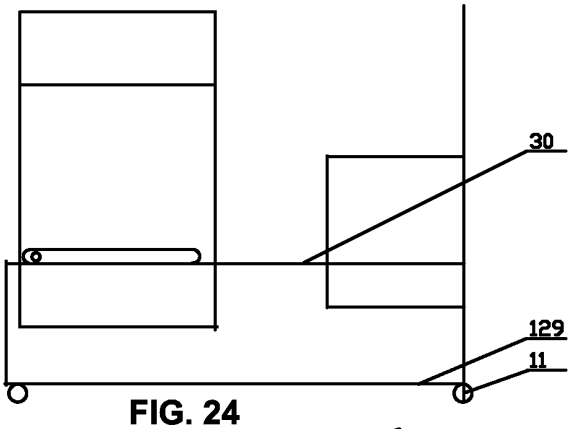

FIG. 24

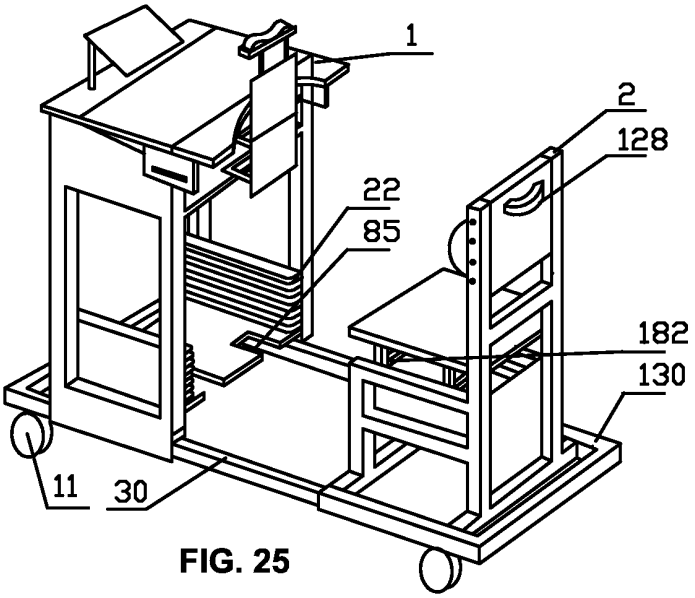

FIG. 25

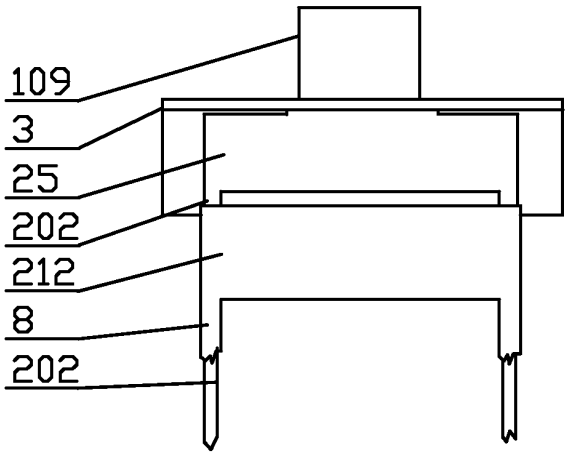

FIG. 26

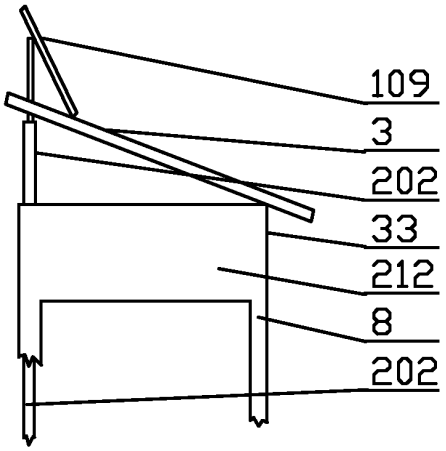

FIG. 27

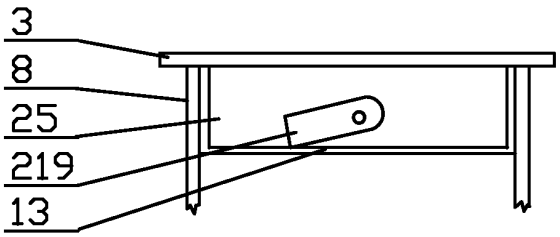

FIG. 28

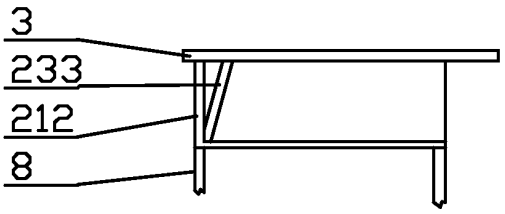

FIG. 29

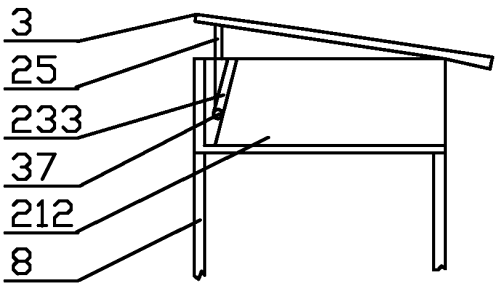

FIG. 30

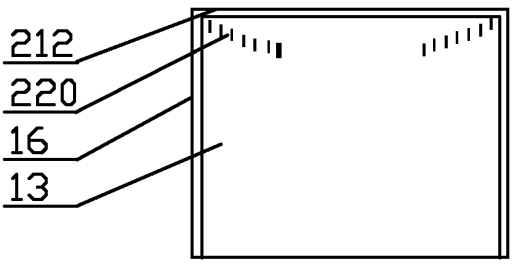

FIG. 31

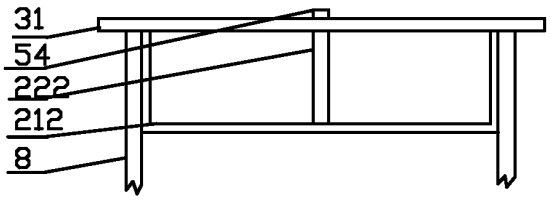

FIG. 32

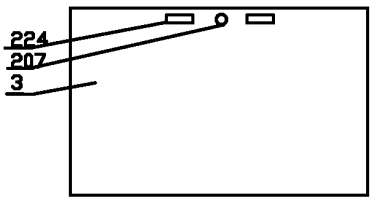

FIG. 33

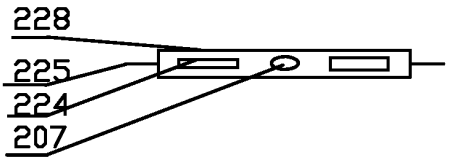

FIG. 34

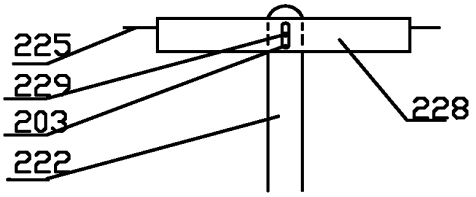

FIG. 35

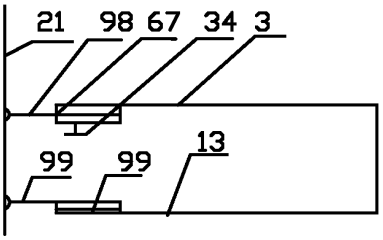

FIG. 36

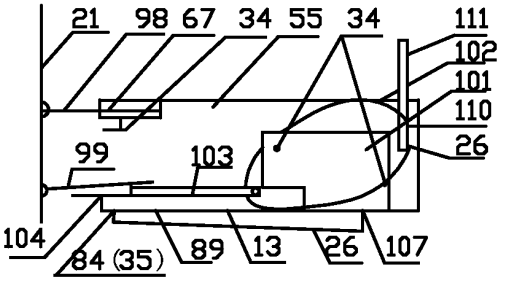

FIG. 37

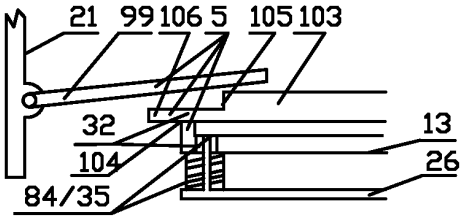

FIG. 38

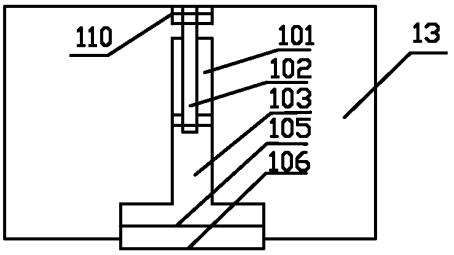

FIG. 39

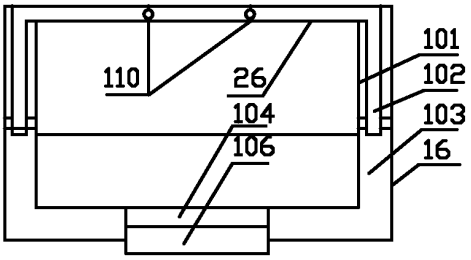

FIG. 40

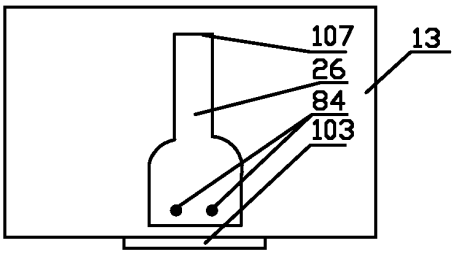

FIG. 41

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2010/075952

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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, A47C

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)

CNPAT,CPRSABS,WPI,EPODOC:correct,rectify,redress,correct???,rectification,redress,remedy,gesticulat???,pose,posture,table,desk,chair,stool, foot w plate,foot w pedal,foot w treadle, lifting, lowering, height,inclination,gradient,foot w rest,caster,Bionics,shelf,shelves,folder,book w end,book,wheel,brak??? Book w rests

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN2030822U(SHAN,Zhengzhong et al.) 18 Jan.1989 (18.01.1989) line 8 of page 1 - line 16 of page 3 in description, and Figs. 1-21	1,5,7
Y	CN1159309A(ZHANG,Fenglin) 17 Sept.1997 (17.09.1997) line 3 of page 3 - line 5 of page 6 in description, and Figs. 1-3	1,5,7
Y	CN101449881A(JING AN DISTR JUVENILE ACTIVIT) 10 Jun.2009 (10.06.2009) lines 8 - 13 of page 2 in description, and Fig. 1	5
Y	CN2627911Y(XIAO,Qi) 28 Jul.2004 (28.07.2004) line 19 of page 2 - line 15 of page 3 in description, and Figs. 1-2	7
A	CN2274445Y(YANG,Shujin) 18 Feb.1998 (18.02.1998) whole document	1-22
A	JP2005-237529A(KINTARO CO LTD) 08 Sept.2005(08.09.2005) whole document	1-22

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

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"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
10 Nov. 2010(10.11.2010)	**25 Nov. 2010 (25.11.2010)**
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 YANG,Xue Telephone No. (86-10)62085828

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2010/075952

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR20080100316 A(YANG YONG GUN) 17 Nov.2008(17.11.2008) whole document	1-22

Form PCT/ISA /210 (continuation of second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2010/075952

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN2030822U	18.01.1989	none	
CN1159309A	17.09.1997	none	
CN101449881A	10.06.2009	none	
CN2627911Y	28.07.2004	none	
CN2274445Y	18.02.1998	none	
JP2005-237529A	08.09.2005	none	
KR20080100316 A	17.11.2008	none	

Form PCT/ISA /210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2010/075952

CLASSIFICATION OF SUBJECT MATTER

A47B9/00 (2006.01) i
A47B13/00 (2006.01) i
A47C3/40(2006.01) i

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 02354452 **[0005]**
- CN 03330221 **[0005]**
- CN 03238636 **[0005]**
- CN 03275800 **[0005]**