A dual use office and leisure chair is provided that overcomes the shortcomings of existing technology. A chair back is provided that is hingeably attached with the handrails. Installation of a pneumatic rod and adjustment device hingeably attached to the chair back enables adjustment to different inclination angles for the chair back. The inclination angle is selectively fixed at any angle within the travel of the pneumatic rod. Simple adjustment, easy use, and long lifetime make it possible to achieve office and leisure dual use for the chair.
DUAL USE OFFICE AND LEISURE CHAIR
CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority benefit of PTC utility model application 2010291800437 filed Feb. 4, 2010, and the contents of which are incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention in general relates to a chair, and in particular to a dual use office and leisure chair.

BACKGROUND OF THE INVENTION

[0003] An office chair now is one of the necessary office supplies for an organization, but the traditional office chair only provides chair seat vertical adjustment relative to the chair legs. The inability to adjust the chair back from one fixed angle has limited the usefulness of such chairs and contributes to worker fatigue. When an office worker feels tired, there is a tendency to recline his upper body to relax, but the conventional nonadjustable chair back angle cannot satisfy the need of a worker for relaxation.

[0004] To respond to this limitation, many of these types of chairs have emerged with chair backs constructed from certain flexible materials, or are installed with flexure devices. In this way, when a chair occupant habitually reclines their upper body, the chair back adapts different angles; and when a chair occupant sits upright, the chair back is also able to recover the base angle through an elastic force. These kinds of chairs in part meet a chair occupant’s needs, but these other chairs also have shortcomings in that: 1) the flexure lifetime is short and the chair back resilience declines with usage and finally disappears, leaving the chair back sagging thereby limiting the utility and aesthetics of the chair; and 2) a chair occupant must apply and maintain a backward force to recline the chair; once the applied force is removed, the chair back recovers to the upright base angle.

[0005] Thus, there exists a need for a chair with a chair back having an adjustable and selectively lockable angle.

SUMMARY OF THE INVENTION

[0006] A dual use office and leisure chair is provided that overcomes the shortcomings of existing technology. A chair back is provided that is hingely attached with the handrails. Installation of a pneumatic rod and adjustment device hingely attached to the chair back enables adjustment to different inclination angles for the chair back, the inclination angle is selectively fixed at any angle within the travel of the pneumatic rod. Simple adjustment, easy use, and long lifetime make it possible to achieve office and leisure dual use for the chair.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The present invention is further illustrated with respect to the following nonlimiting drawings.
[0008] FIG. 1 is the schematic diagram of three-dimensional structure of an inventive chair;
[0009] FIG. 2 is a schematic side view of the inventive chair of FIG. 1 with an upright chair back;
[0010] FIG. 3 is a schematic side view of the inventive chair of FIG. 1 with the chair back depicted in a reclined position;
[0011] FIG. 4 is a perspective schematic diagram of the connection for the cover, connectors, and pneumatic rod and adjustment device shown in FIG. 1; and
[0012] FIG. 5 is the cutaway view of the connector for FIG. 4 to show the winding sheet.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] The present invention has utility as a chair with a moveable chair back hingely attached to two handrails through shafts. The installation of pneumatic rod and adjustment device hingely attached with the chair back enables adjustment to different inclination angles α of the chair back that can simultaneously be selectively locked at a desired inclination angle α. Simple adjustment, easy use, and long lifetime make it possible to achieve both office and leisure dual use to the inventive chair. Typical range of inclination angle α range from 80 to 140 degrees and preferably are between 90 and 120 degrees. The minimum angle α is typically between 80 and 95 degrees, while the maximal angle α is typically between 100 and 140 degrees.

[0014] An inventive dual use office and leisure chair includes the chair legs, a chassis, a sitting board, and two handrails attached to the seat. The moveable chair back is hingely attached to the bounding two handrails through a shaft. Opening slots are provided for fastener attachment. A cover is provided for rivet fixing in the shaft the described sitting board to anchor one end of the chair back angle to adjusting pneumatic rod via a hinged connector. A clearance fitting for the pneumatic rod is installed in the described hinged connector. The pneumatic rod free end is thus hingely attached to a transition connecting board that is secured on the moveable chair back. The other end of the pneumatic rod is in contact with the side of the winding sheet which in turn is in connection with the adjustment device.

[0015] The inventive dual use office and leisure chair has an adjustment device including a control button, pulling line, and a button bracket. The button bracket is installed with the control button secured to the sitting board with fasteners. One end of the pulling line is secured in connection with the control button, and the other end of the pulling line is in connection with the winding sheet. Four chassis fixed blocks are installed between the chassis and the sitting board. Optionally, another pneumatic rod is installed between the chair legs and the chassis. The gas bar of the second pneumatic rod is in fixed connection with the chassis; the adjustment handle for the second pneumatic rod controls the lifting of the sitting board rod is installed on the chassis.

[0016] The present invention is depicted in exemplary form with respect to FIGS. 1-5. An inventive dual use office and leisure chair includes chair legs 1, chassis 2, sitting board 3, and two handrails 4 fixed on the board 3. The moveable chair back 5 is hingely attached to the two handrails 4 through shafts 6. The shafts 6 have an aperture 301 for the hinged attachment. Similar shafts 6 secure the handrails 4 to the sitting board 3. Cover 7 is rivet fixed to the sitting board 3. The pneumatic rod 8 preferably extends from the under surface of the cover 7 through the connector 9 and extends from the underside 303 of the board 3. Clearance fit for the rod 801 of the pneumatic rod 8 is installed to the connector 9. The gas bar 802 is hinged with the transition connecting board 10 fixed on the moveable chair back 5 with the front end hingely attached inside the described connecters 9. The back end of
the gas bar 802 in contact with the side of the winding sheet 12 which in turn is in connection with the adjustment device 11.

[0017] The adjustment device 11 includes a control button 1101, pulling line 1102, and the button bracket 1103. The button bracket 1103 installed with the control button 1101 is secured to the sitting board 3 with fasteners, such as screws. One end of the pulling line 1102 is in fixed connection with the control button 1101, and the other end of the pulling line 1102 is in connection with the winding sheet 12. Chassis fixed blocks 13 are installed between the chassis 2 and sitting board 3. While four fixed blocks 13 are depicted, it is appreciated that one of skill in the art can use a number of blocks other than four.

[0018] A second pneumatic rod 14 is optionally installed between the chair legs 1 and the chassis 2. A gas bar 1401 of the pneumatic rod 14 is in fixed connection with the chassis 2. An adjustment handle 15 controls the lifting of the pneumatic rod 14 and is installed on the described chassis 2.

[0019] The sitting board 3 has an opening slot 302 to provide relative angular travel between the moveable chair back 5 and the sitting board 3.

[0020] During use, when a user wants to recline the moveable chair back 5, the control button 1101 is activated to drive the pull wire 1102 and pull the winding sheet 12 so as to compress the gas bar 802 of the pneumatic rod 8 into the rod 801 while imposing a force against the moveable chair back 5. The moveable chair back 5 is thus pivoted about the shaft 6 on the handrails 4 to change the inclination angle α. The backward reclining inclination angle is determined by the telescopic travel of gas bar 802 of the pneumatic rod 8; when the angle is properly adjusted, the user releases the control button 1101 to selectively lock the relative position between the chair back 5 and the sitting board 3. The moveable chair back 5 is returned to a minimal travel upright and original angle by pressing the control button 1101, and under the action of compressed air from the pneumatic rod 8, the gas bar 802 extends without imposition of force on the moveable chair back 5 to be reset to the original upright angle. It is appreciated that the pneumatic rod 8 is readily mounted to make the maximal inclination angle (recline) the compressed air released position of pneumatic rod 8. Control of the optional pneumatic rod 14 through the adjustment handle 15 is readily performed to adjust the height of the sitting board 3 which is in connection with the chassis 2.

[0021] The foregoing description is illustrative of particular embodiments of the invention, but is not meant to be a limita
tion upon the practice thereof. The following claims, including all equivalents thereof, are intended to define the scope of the invention.

1. A chair comprising:
   a plurality of chair legs;
   a chassis supported by said plurality of chair legs;
   a sitting board mounted to said chassis upward and away from said chassis;
   a pair of handrail rails mounted to said sitting board;
   a chair back hingeably mounted to said pair of handrails to define an inclination angle; and
   a pneumatic rod in mechanical communication between said sitting board and said chair back for selectively changing and locking said inclination angle.

2. The chair of claim 1 wherein said sitting board has an open slot to accommodate travel of said pneumatic rod.

3. The chair of claim 2 further comprising a cover mounted to said sitting board and pivotally securing a connector to a first end of said pneumatic rod.

4. The chair of claim 3 wherein said pneumatic rod has a gas bar extending from a second end of said pneumatic rod that is pivotally connected to a transition connecting board secured to said chair back.

5. The chair of claim 1 further comprising an adjustment device in mechanical communication with said pneumatic rod for operating said pneumatic rod.

6. The chair of claim 5 wherein said adjustment device further comprises a control button connected to a pulling line, said pulling line operating a winding sheet that in turn controls actuation of said pneumatic rod.

7. The chair of claim 1 further comprising a plurality of chassis blocks intermediate between said chassis and said sitting board.

8. The chair of claim 1 further comprising a second pneumatic rod mounted in mechanical communication between said plurality of legs and said chassis for selectively lifting said chassis relative to said plurality of legs.

9. The chair of claim 8 further comprising an adjustment handle coupled to said second pneumatic rod for operation of said second pneumatic rod.

10. The chair of claim 1 wherein said pneumatic rod extends from an underside of said sitting board.

11. The chair of claim 1 wherein the inclination angle has a minimum angle of between 80 and 95 degrees.

12. The chair of claim 1 wherein the inclination angle has a maximum angle of between 100 and 140 degrees.

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