COLLAPSIBLE CHAIR AND METHOD

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ABSTRACT

A chair with a chair back pivotally attached to a seat. The chair back can be moved from a collapsed position located directly adjacent the seat to an upright position. When in the upright position, a spring biased latch assembly attached to chair seat allows engagement with the chair back and can be adjusted to several, adjustable positions selected by the user. In addition to providing a range of adjustment, this latch system also provides structural integrity to the design of the pivoting chair invention.
FIG. 5

UPPER ARM REST

PIVOT PIN

LOWER ARM REST PIVOT BRACKET
COLLAPSIBLE CHAIR AND METHOD

FIELD OF THE INVENTION

[0001] The field of this invention relates to a chair where the back of the chair can be pivoted from a fully collapsed position, for packing and shipping purposes, located directly against the seat of the chair to an upright, adjustable position, that is within the normal position of usage. The nature of this invention allows the chair to have armrests attached or not attached.

BACKGROUND OF THE INVENTION

[0002] A typical chair has a seat and a back rest. This configuration of a chair is not conducive to shipping after being manufactured for the reason that an assembled chair inherently occupies a substantial amount of space. It is common for chairs to be manufactured in overseas manufacturing facilities meaning that the chairs are required to be put into cartons and then shipped by shipping containers to the United States or their final destination. The size of the shipping carton for a chair, which contains a back fastened to a seat in the normal upright manner, is of a significant size and therefore limits the number of shipping cartons that can be placed within a shipping container. This increased carton size directly correlates with the shipping cost and results in significantly higher cost per chair.

[0003] In today’s manufacturing environment, it is common practice to detach the chair back from the seat. The back can then be placed against the seat and packaged with the other chair components with the resulting in a significantly more compact unit for purposes of shipping. Once the disassembled chair reaches the retailer or end user, either the retailer or the consumer is required to then assemble the chair. Assembly usually requires properly positioning the chair components and using several bolt type fasteners to be installed and tightened. End users find this process to be undesirable, time consuming and even difficult for those certain individuals that have a minimal amount of mechanical aptitude.

SUMMARY OF THE INVENTION

[0004] The present invention pertains to an office chair. The chair comprises a seat. The chair comprises a back that is attached to the seat which is foldable from essentially an open vertical position to a collapsed horizontal position relative to the seat and the back defines a plane. The chair comprises a foldable armrests attached to the seat and the back that move with the back between the open position and the collapsed position as the back moves between the open position and the collapsed position and the armrests are below the plane in the collapsed position.

[0005] The present invention pertains a method for moving an office chair. The method comprises the steps of folding a back from essentially an open vertical position to a collapsed horizontal position relative to a seat that is attached to the back. There is the step of folding armrests attached to the seat and the back that move with the back between the open position and the collapsed position as the back moves between the open position and the collapsed position.

[0006] One armrest option allows the armrests to attach independently of the pivoting mechanism and allow the design to have a range of flexibility as it applies to the armrest style and functionality.

[0007] Another armrest option allows the armrests to attach to the backrest and seat bottom in a fashion similar to most chair armrests. The uniqueness of this armrest design provides a pivot point on the inside surface of the armrest that allows the armrest to fold to a completely collapsed form and open into a fully usable position in one fluid motion. This armrest design automatically accommodates the adjustability feature of this chair design by allowing the backrest to adjust to several recline positions without any consumer adjustment. Since the armrests are attached to the backrest and seat, this design also provides structural integrity to the overall chair design.

[0008] The invention creates a solution to a common shipping issue by reducing its shipping cube size and more importantly provides a quick, easy and time saving method for the consumer to set up the chair without the use of tools or fasteners. This is a very desirable product attribute for the consumer and an advantageous feature for the manufacturing facility and retailer.

[0009] Both the trade and consumer benefits substantially from this chair design.


[0011] The trade/Retailer can offer an easy to set up chair to the consumer—a benefit that is very appealing and offers a unique marketing appeal.

[0012] The trade/ Retailer benefits from reduced inventory space requirements for this style chair.

[0013] The consumer can quickly and easily assemble the chair without the need for tools or fasteners. This design allows the user to begin its use very quickly and easily.

[0014] The consumer has the ability through this invention to pivot the backrest to a position that is conducive to their work environment and comfort range.

[0015] The consumer benefits from a chair design that has the flexibility to add armrests in a range of styles.

[0016] The Foldable Style armrests allow the chair to have a traditional design and appearance yet have the ability to fold and adjust with the movement features of the chair.

[0017] The primary objectives of this invention is to construct a chair that is collapsible for purposes of shipping, but upon reaching the retailer or end user, the chair can be moved from its collapsed position to a normal usage position without requiring the use of any fasteners or the use of any tools. The user then can adjust the position of the backrest to a position most comfortable for their body and usage environment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] In the accompanying drawings, the preferred embodiment of the invention and preferred methods of practicing the invention are illustrated in which:

[0019] FIG. 1 is a view showing the chair with pivoting back 1 of the present invention and the pivotable arms 2 in the fully engaged, upright position.

[0020] FIG. 2 is a view similar to FIG. 1 but with the chair with pivotable back of this invention and the pivotable arms with a closer view of the ornamental detail of the upper arm and lower arm.

[0021] FIG. 3 is a view of the collapsible arms in a partly folded position.
[0022] FIG. 4 is a view of the chair with pivotable back and pivotable armrests in the collapsed position; armrests are fully collapsed for compact shipment.

[0023] FIG. 5 is a schematic representation of the upper and lower armrests.

[0024] FIG. 6 shows armrests in an upright position.

[0025] FIG. 7 shows armrests in a collapsed position.

[0026] FIG. 8 shows an underside perspective view of the seat and back.

DETAILED DESCRIPTION

[0027] Referring now to the drawings wherein like reference numerals refer to similar or identical parts throughout the several views, and more specifically to FIGS. 1-7 thereof, there is shown an office chair 100. The chair 100 comprises a seat 10. The chair 100 comprises a back 29 that is attached to the seat 10 which is foldable from essentially an open vertical position to a collapsed horizontal position relative to the seat 10 and the back 29 defines a plane 60. The chair 100 comprises foldable armrests 18 attached to the seat 10 and the back 29 that move with the back 29 between the open position and the collapsed position as the back 29 moves between the open position and the collapsed position and the armrests 18 are below the plane 60 in the collapsed position.

[0028] Preferably, the chair 100 includes a pedestal 50 upon which the seat 10 is disposed. The base preferably has wheels 72 upon which the chair 100 can be moved around. Preferably, each armrest 18 includes a lower armrest pivot bracket 70 that engages with the seat 10 and an upper armrest portion pivotally connected with the lower armrest pivot bracket 70. The upper armrest 18 portion preferably includes a flange 62 with a flange opening 64 and the lower armrest pivot bracket 70 has a top 66 with a bracket opening 68, and including a pivot pin 8 that extends through the flange opening 64 and the bracket opening 68 pivotally connecting the lower armrest pivot bracket 70 with the upper armrest 18 portion.

[0029] Preferably, the lower armrest pivot bracket 70 and the upper armrest 18 portion each have a J-shape. The chair 100 preferably includes a support bracket 13 and a second support bracket 14 attached on either side of the seat 10 used for pivoting the seat 10. Preferably, the chair 100 includes a pivot assembly 40 used to interconnect the seat 10 and back 29 via the support brackets. Preferably, the pivot assembly 40 includes a spring biased latch assembly 28 mounted on the seat 10 and a receiving bracket located on the back 29 that engages with the latch assembly 28 allowing the user to position the back 29 in several adjustable upright positions. Each armrest 18 preferably has a cushioned pad 22. The back 29 and seat 10 are preferably cushioned.

[0030] The present invention pertains a method for moving an office chair 100. The method comprises the steps of folding a back 29 from essentially an open vertical position to a collapsed horizontal position relative to a seat 10 that is attached to the back 29. There is the step of folding armrests 18 attached to the seat 10 and the back 29 that move with the back 29 between the open position and the collapsed position as the back 29 moves between the open position and the collapsed position.

[0031] Preferably, there is the step of moving a base upon which the seat 10 is disposed on wheels 72 of the base. Preferably, the folding armrest 18 step preferably includes the step of pivoting an upper armrest 18 portion of the armrest 18 relative to a lower armrest pivot bracket 70 of the armrest 18. The step of pivoting the upper armrest pivot portion includes the step of pivoting the upper armrest portion relative to the lower armrest pivot bracket 70 of a pivot pin 8 that extends to a flange 62 of the upper armrest portion 61 and a hole at the top of the lower armrest pivot bracket 70.

[0032] The invention provides a very simple, easy to use solution for building a chair that commonly requires full assembly by the user. The support brackets mount to the underside of the seat 10 surface in several points and are constructed separately from the armrests 18. The armrests 18 are fully foldable and pivotal. They move in relation to the backrest and fold for shipment. The armrests 18 automatically adjust in connection with the adjustable backrest movement without any need for the consumer to use tools or make additional adjustments.

[0033] The armrest 18 design allows for armrest 18 to adjust in conjunction with several user adjustable positions and also in a fully collapsed position that allows for a very compact shipping cube. The top of the armrest 18 positions in its fully collapsed state, at the level or lower than the seat 10 back in its fully collapsed state as seen in FIG. 4.

[0034] The invention provides a very simple, easy to use solution for building a chair that commonly requires full assembly by the user. The Pivot Brackets mount to the underside of the seat 10 surface in several points and are constructed separately from the armrests 18. The armrests 18 are fully foldable and pivotal. They move in relation to the backrest and fold completely flat for shipment. The armrests 18 automatically adjust in connection with the adjustable backrest movement without any need for the consumer to use tools or make additional adjustments.

[0035] FIG. 3 is a view of the collapsible arms in a partly folded position. The arms move in relation to the folding of the backrest. There are two pivot points 4 and 5 in this armrest 18 design that allow the armrest 18 to move in such a manner. Pivot point 3 located on the inside surface of the upper armrest part 6 and the upper edge of the lower armrest part 7 allows the armrest 18 to hinge and move with the foldable backrest. Hinge point 3 allows arm to collapse and fold for minimal shipping cube as well as open for quick assembly. Hinge point 3 also allows adjustable back repositioning for 2-3 angles.

[0036] The armrest 18 design allows for armrest 18 to adjust in conjunction with several user adjustable positions and also in a fully collapsed position that allows for a very compact shipping cube. The top of the armrest 18 positions in its fully collapsed state, at the level or lower than the seat 10 back in its fully collapsed state as seen in FIG. 4.

Patent References, all of which are incorporated by reference herein:

[0037] Grove—No. 6,786,553 Chair with Pivotable Back

[0038] Grove—No. 6,464,300 Collapsible Chair


[0040] Although the invention has been described in detail in the foregoing embodiments for the purpose of illustration, it is to be understood that such detail is solely for that purpose and that variations can be made therein by those skilled in the art without departing from the spirit and scope of the invention except as it may be described by the following claims.
What is claimed is:
1. An office chair comprising:
   a seat;
   a back that is attached to the seat which is foldable from
   essentially an open vertical position to a collapsed hori-
   zontal position relative to the seat and the back defines a
   plane; and
   foldable armrests attached to the seat and the back that
   move with the back between the open position and the
   collapsed position as the back moves between the open
   position and the collapsed position and the armrests are
   below the plane in the collapsed position.
2. A chair as described in claim 1 including a pedestal upon
   which the seat is disposed.
3. A chair as described in claim 2 wherein the base has
   wheels upon which the chair can be moved around.
4. A chair as described in claim 3 wherein each armrest
   includes a lower armrest pivot bracket engaged with the seat
   and an upper arm rest portion pivotally connected with the
   lower armrest pivot bracket.
5. A chair as described in claim 4 wherein the upper armrest
   portion includes a flange with a flange opening and the lower
   armrest pivot bracket has a top with a bracket opening, and
   including a pivot pin that extends through the flange opening
   and the bracket opening pivotally connecting the lower arm-
   rest pivot bracket with the upper armrest portion.
6. A chair as described in claim 5 wherein the lower armrest
   pivot bracket and the upper armrest portion each have a
   J-shape.
7. A chair as described in claim 6 including:
   a first support bracket and a second support bracket
   attached on either side of the seat used for pivoting the
   seat.
8. A chair as described in claim 7 including a pivot assem-
   bly used to interconnect said seat and back via the support
   brackets.
9. A chair as described in claim 8 wherein the pivot assem-
   bly includes a spring biased latch assembly mounted on the
   seat and a receiving bracket located on the back that engages
   with the latch assembly allowing the user to position the back
   in several adjustable upright positions.
10. A method for moving an office chair comprising the
    steps of:
        folding a back from essentially an open vertical position to
        a collapsed horizontal position relative to a seat that is
        attached to the back; and
        folding armrests attached to the seat and the back that move
        with the back between the open position and the col-
        lapsed position as the back moves between the open
        position and the collapsed position.
11. A method as described in claim 8 including the step of
    moving a base upon which the seat is disposed on wheels of
    the base.
12. A method as described in claim 8 wherein the folding
    armrest step includes the step of pivoting an upper armrest
    portion of the armrest relative to a lower armrest pivot bracket
    of the armrest.
13. A method as described in claim 12 wherein the step of
    pivoting the upper armrest pivot portion includes the step of
    pivoting the upper armrest portion relative to the lower arm-
    rest pivot bracket of a pivot pin that extends to a flange of the
    upper armrest portion and a hole at the top of the lower
    armrest pivot bracket.