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ADJUSTABLE CHAIR

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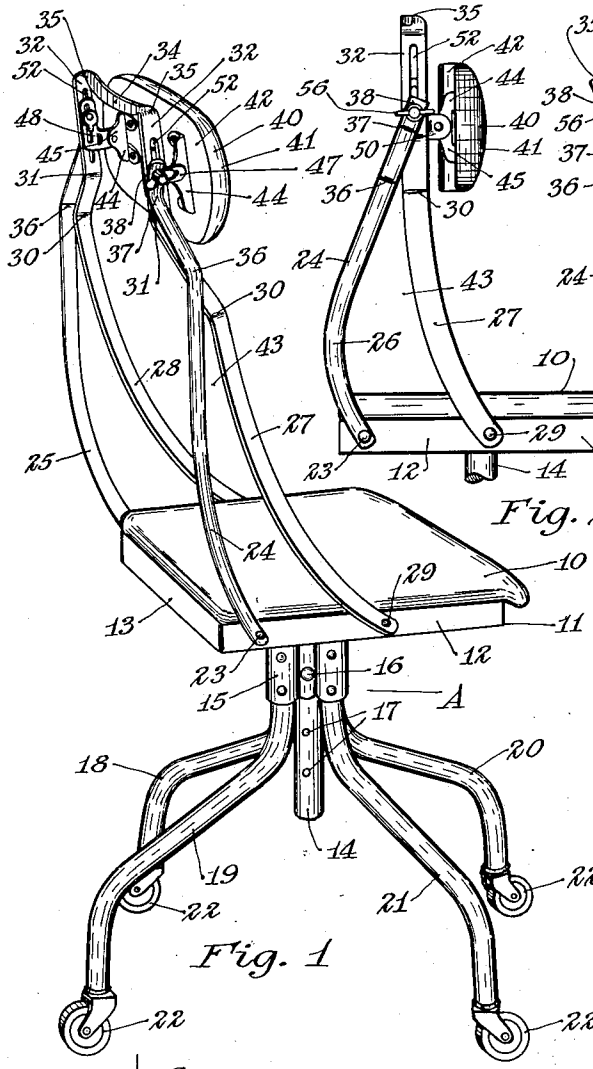


Fig. 1

Fig. 2

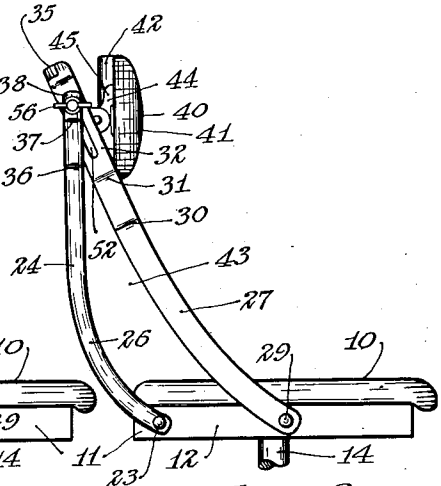


Fig. 3

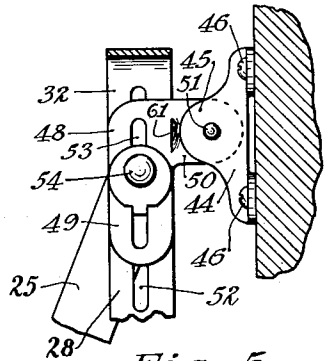


Fig. 5

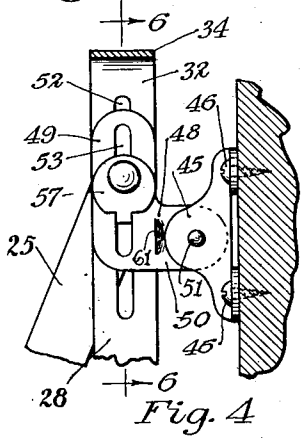


Fig. 4

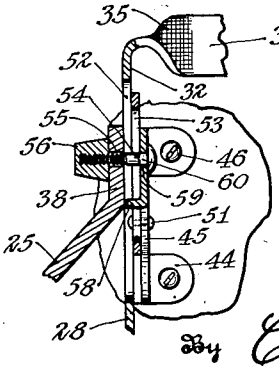


Fig. 6

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ADJUSTABLE CHAIR

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9 Claims. (Cl. 155—157)

Our invention relates to chairs and particularly to chairs provided with back rests and has for an object to provide an adjusting device therefor whereby the back rest may be easily and quickly adjusted both in an up and down direction and in a back and forth direction.

Another object of the invention resides in providing an upright hingedly connected to the rearward portion of the seat of the chair and a brace hingedly connected to the seat forwardly of said upright and extending in proximity to said upright at the upper end thereof.

A still further object of the invention resides in providing a pivot for hingedly connecting the upper portions of said upright and brace together, said pivot being slidable relative to one thereof.

A feature of the invention resides in providing an attaching member for said back rest, and in mounting said attaching member on said pivot.

An object of the invention resides in providing either the upright or the brace with a slot through which said pivot extends for guiding the parts for sliding movement relative to one another.

Another object of the invention resides in preferably disposing said slot in said brace member.

A still further object of the invention resides in employing a bolt for said pivot, said bolt extending jointly through said attaching member, brace, and upright, and serving to clamp the parts in adjusted position.

A feature of the invention resides in forming said attaching member L-shaped having a substantially horizontal and a substantially vertical leg.

An object of the invention resides in attaching the back rest to the horizontal leg of said attaching member and in passing the bolt through the vertical leg thereof.

Another object of the invention resides in forming the vertical leg of said back rest with a slot through which said bolt extends.

A still further object of the invention resides in providing a member movable with said bolt and having means extending through both the slot in said brace and the slot in said attaching member for assisting in guiding said attaching member for sliding movement along said brace.

A feature of the invention resides in constructing said last named member in the form of a washer mounted upon said bolt and having a tongue extending jointly through the slot in said attaching member and said brace for assisting in guiding said attaching member for sliding movement relative to said brace.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawing:

Fig. 1 is a perspective view of a chair illustrating an embodiment of my invention.

Figs. 2 and 3 are side elevational views of the seat structure of the chair showing the back rest in various adjusted positions.

Figs. 4 and 5 are fragmentary detail elevational views of the back rest mounting structure illustrating the attaching member in different positions, and drawn to a larger scale.

Fig. 6 is a longitudinal sectional view taken on line 6—6 of Fig. 4.

In the adjustment of chairs having adjustable back rests, considerable difficulty has been encountered where independent up and down and back and forth adjustment had to be made, and particularly where one of the adjustments would alter the adjusted position of the back rest procured through the other adjustment. The present invention provides an extremely simple and effective device whereby both adjustments may be made at one time, if desired, and whereby two clamping bolts may be utilized to clamp all of the parts rigidly in any desired adjusted position.

For the purpose of illustrating the application of our invention, we have shown in a drawing, a chair indicated in its entirety at A. This chair comprises a seat 10 which is carried by a seat frame 11 constructed with side members 12 and front and rear members 13. The seat frame 11 has attached to it a standard 14 which is slidably mounted in a crown block 15 and which is adapted to be held in adjusted position relative thereto through a latch bolt 16 mounted in the crown block and adapted to engage any of a number of notches or holes 17 in the standard 14. Attached to the crown block 15 are four legs 18, 19, 20 and 21 which flare outwardly from said crown block and which have attached to the outer ends thereof casters 22 which function in the ordinary manner to properly support the seat structure 10. The particular construction of the seat 10 and the supporting structure therefore being old in the art, the structure disclosed has been shown merely for the purpose of illustration, and it can readily be comprehended that any seat construction and supporting structure therefore may be employed.

In conjunction with the seat 10 and supporting structure therefore a back rest 40 is employed which may be constructed in any suit-

able manner and which is preferably formed with a cushion 41 and a back 42 to which the cushion is attached. The back rest 42 is carried by a supporting structure indicated in its entirety at 43 which will now be described in detail.

To the rearward portions of the side members 12 of the seat frame 11 are pivoted at 23 two uprights 24 and 25 which are preferably curved as designated at 26 in Figs. 2 and 3 to bring the upper portions thereof rearwardly of the chair when extending in a substantially vertical direction. In conjunction with the two uprights 24 and 25, two braces 27 and 28 are employed which are pivoted forwardly of the uprights 24 and 25 to the side frame members 12 of the frame 11 as designated at 29. The braces 27 and 28 are formed with bends 30 and 31 to provide offset portions 32 at the upper portions of the same. The upper ends of the two braces 27 and 28 are connected together through a bridge member 34 which may be integrally constructed with respect thereto. In the construction of both the uprights and braces, the same may be preferably formed of bar or strap material either rectangular or half round in cross section. With the present invention, the uprights 24 and 25 have been illustrated as constructed of half round material and the braces 27 and 28 as constructed of material rectangular in cross section. When so constructed, the bridge member 34 may be formed by providing quarter twists 35 in the middle at the upper portions of the offset 32 which permit of bending the bridge member 34 to more nearly conform to the curvature of the back rest. In conformity to the braces 27 and 28, the uprights 24 and 25 are similarly constructed with bends 36 and 37 to provide offsets 38 adapted to overlie the offset portions 32 of said braces.

The back rest 40 is attached to the back rest supporting structure 43 by a construction now to be described in detail. Attached to the back 42 of the back rest 40 are two brackets 44 which are constructed with outwardly extending ears 45. These brackets may be secured to the back 42 in any suitable manner as by screws 46 (Fig. 4) or in any other desired manner. The brackets 44 are supported on two attaching members 47 and 48 which are identical in construction and which are carried by the uprights 24 and 25 and the braces 27 and 28. Due to the similarity of these members and the method of attachment thereof to the supporting structure 43, only the attaching member 48 and the structure associated therewith has been illustrated in detail, in the drawings. The attaching member 48 as best shown in Figs. 4 and 6 is constructed of sheet metal and is preferably L-shaped to provide a substantially vertical leg 49 and a substantially horizontal leg 50. The ear 45 of the bracket 44 is pivoted to the leg 50 through a rivet 51 or other suitable structure. In the other leg 49 of this attaching member is formed a longitudinal slot 53 which extends substantially throughout the length thereof. In the offset portions 32 of braces 27 and 28 are formed similar slots 52 of the same width as the slot 53 but of somewhat greater length. A bolt 54 passes jointly through the slots 52 and 53 of the offset portions 32 and attaching member 48 and further through a hole 55 in the offset portion 38 of the upright 25. A thumb nut 56 threaded to screw upon the end of the bolt 54 serves to clamp all of the parts together to hold the same in adjusted position.

To prevent the attaching member 48 from swinging relative to the brace 28 and to guide the same for longitudinal sliding movement relative thereto, a locking device is employed which is designated at 57. This locking device may be constructed of sheet metal in the nature of a washer and is provided with a tongue 58 bent out of the plane thereof and adapted to extend through both of the slots 52 and 53. The bolt 54 is adapted to pass through said washer and a square shoulder 60 on said bolt is seated in a square hole 59 in washer 57 whereby said bolt is held from rotation. The tongue 58 cooperating with the bolt 54 serves to guide the attaching member 48 for sliding movement relative to the slot 52. Although I have shown the washer 57 constructed with but a single tongue issuing outwardly therefrom, it can readily be comprehended that said washer may be constructed with two such tongues arranged on opposite sides of the bolt 54 so that the bolt 54 need not be relied upon for guiding the parts for sliding movement. Such construction being obvious has not been illustrated in the drawing. The attaching member 48 is further guided for movement along the brace 28 through an ear 61 which is struck out from said attaching member and which engages the edge of said brace. As previously stated, both brackets 44 are supported in identical manner upon the respective offset portions 32 and 38 of the braces 27 and 28 and the uprights 24 and 25.

Where the chair is to be fitted to a relatively short person, the back rest is assembled with the back rest so disposed that the legs 49 of the attaching members 48 extend upwardly from the legs 50 as shown in Fig. 4. The bolts 54 are then inserted through the holes 59 in the washer 57 through both the slots 52 and 53 and through the hole 55 in the offset portion 38 of the respective uprights 24 and 25. The parts may then be adjusted and clamped in position by tightening the nuts 56. Where the chair is to be fitted to a relatively tall person, the back rest may be entirely removed from the chair and inverted causing the legs 49 of the attaching members 48 to extend downwardly from the legs 50 as indicated in Fig. 5. The parts may then be bolted together in exactly the same manner as when assembled as illustrated in Fig. 4 leaving the back rest in a relatively higher position. In the use of the device, it it merely necessary to loosen both of the nuts 56. By grasping the supporting structure 43 through the bridge member 34, the entire supporting structure may be swung from its extreme forward position as shown in Fig. 2 to its extreme rearward position as shown in Fig. 3. During such movement the bolts 54 slide along the slots 52 in the offset portions 32 of the braces 27 and 28. Through such movement, the back and forth position of the back rest may be adjusted to accommodate the person to be seated. When the proper back and forth position has been procured, the back rest 40 may be raised or lowered bodily by sliding the attaching members 48 along the bolts 54. During such movement said bolts ride along the slots 53. During such movement the attaching members 47 and 48 are deprived of rotation through said bolts and through the tongues 58 on the washer 57. In this manner up and down adjustment of the back rest may be procured independently of the back and forth adjustment. When the back rest has been properly positioned, both of the nuts 56 may be tightened and the parts thereafter remain in adjusted position. If desired, both adjust-

ments may be made simultaneously by moving the back rest in the desired manner. Where the height cannot be properly adjusted through the up and down adjustment afforded by slot 53 in the attaching member 48, the attachment of these members to the offset portions 32 of the braces 27 and 28 may be reversed as previously brought out and as disclosed in Figs. 4 and 5 so that further adjustment may be had.

Although we have described the parts as constructed with slots, yet it can readily be comprehended that series of holes may be used in place thereof or any other suitable device for guiding the parts for sliding movement may be employed.

The advantages of our invention are manifest. The back rest may be readily adjusted to any height or brought to any back and forth position with respect to the seat. The adjustment of the chair may be quickly and easily accomplished and may be secured by merely manipulating the supporting structure and the back rest proper. The parts may be simultaneously locked in adjusted position by the two bolts provided and when so locked are rigidly held in place. The device is extremely light in construction and attractive in appearance.

Changes in the specific form of our invention may be made within the scope of what is claimed without departing from the spirit of the invention.

Having described our invention what we claim as new and desire to protect by Letters Patent is:

1. A chair comprising a seat, an upright hingedly connected to the seat at the rear thereof, a brace hingedly connected to the seat forwardly of said upright, said brace having a longitudinal slot at the upper end thereof, a bolt extending through said upright and through the slot in said brace for pivotally and slidably connecting said brace and upright together, an attaching member mounted on said bolt and movable in the same direction as said pivot, and a back rest carried by said attaching member.

2. A chair comprising a seat, an upright hingedly connected to the seat at the rear thereof, a brace hingedly connected to the seat forwardly of said upright, said brace having a longitudinal slot at the upper end thereof, said upright lying along said brace on one side thereof, an attaching member lying along said brace on the opposite side thereof, and a bolt extending jointly through said attaching member, the slot in said brace and through said upright for slidably connecting said attaching member relative to said brace, said bolt serving to clamp said parts in adjusted position.

3. A chair comprising a seat, a back rest supporting structure extending upwardly therefrom, an L-shaped attaching member having a slot in one leg thereof, a bolt extending through said slot and through said supporting structure, a back rest attached to the other leg of said attaching member, said attaching member being slidable along said bolt, and means held from rearward and forward movement relative to said supporting structure and engaging within the slot of said attaching member, said means assisting in guiding said back rest for up and down movement.

4. A chair comprising a seat, a back rest supporting structure extending upwardly therefrom including a member having a slot extending in an up and down direction, an L-shaped attaching member having a substantially horizontal and a substantially vertical leg and formed with a slot in its vertical leg, a back rest attached to the horizontal leg of said attaching member, a bolt extending jointly through both of the slots of the attaching member and the member of said supporting structure, and means movable with said bolt and disposed within both of said slots for assisting in guiding said attaching member for up and down movement.

5. A chair comprising a seat, an upright hingedly connected to the seat at the rear thereof, a brace hingedly connected to the seat forwardly of said upright, one thereof having a longitudinal slot, a bolt passing through said slot and through the other thereof for pivotally and slidably connecting said brace and upright together, an L-shaped attaching member having a slot in one leg thereof, said bolt also extending through said attaching member slot, a back rest carried by the other leg of said attaching member, and means movable with said bolt and extending through both of said slots for assisting in guiding said attaching member for sliding movement.

6. A chair comprising a seat, an upright hingedly connected to the seat at the rear thereof, a brace hingedly connected to the seat forwardly of said upright, one thereof having a longitudinal slot, a bolt passing through said slot and through the other thereof for pivotally and slidably connecting said brace and upright together, an L-shaped attaching member having a slot in one leg thereof, said bolt also extending through said attaching member slot, a back rest carried by the other leg of said attaching member, and a washer on said bolt having a tongue extending jointly through both of said slots for assisting in guiding said attaching member for sliding movement.

7. A chair comprising a seat, a pair of uprights pivoted to the rearward portions of said seat, a pair of braces pivoted to said seat forwardly of said uprights, guides on one thereof, bolts extending through corresponding pairs of uprights and braces and slidable along said guides, L-shaped attaching members having substantially vertical and horizontal legs, said vertical legs being formed with longitudinal slots, a back rest attached to said horizontal legs, said bolts extending through said slots and serving to clamp said back rest in vertical adjusted position, said back rest being reversible to interchange the attaching members so as to cause the horizontal legs to extend outwardly from said uprights and braces at different elevations with respect thereto.

8. A chair comprising a seat, an upright hingedly connected to the seat at the rear thereof, a brace hingedly connected to the seat forwardly of said upright, one thereof having a longitudinal slot at its upper end, a bolt extending through the other thereof and through said slot for pivotally and slidably connecting the brace and upright together, an attaching member mounted on said bolt, and a back rest carried by said attaching member.

9. A chair comprising a seat, an upright hingedly connected to the seat at the rear thereof, a brace hingedly connected to the seat forwardly of said upright, an attaching member, said brace, upright and attaching member having juxtaposed parts, and connecting means for connecting the juxtaposed parts together, said connecting means providing relative sliding movement of two of the parts and a clamp for simultaneously clamping all of them.

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