July 22, 1941. W. F. HEROLD 2,249,828

POSTURE CHAIR IRON

Filed Aug. 26, 1938 4 Sheets-Sheet 1

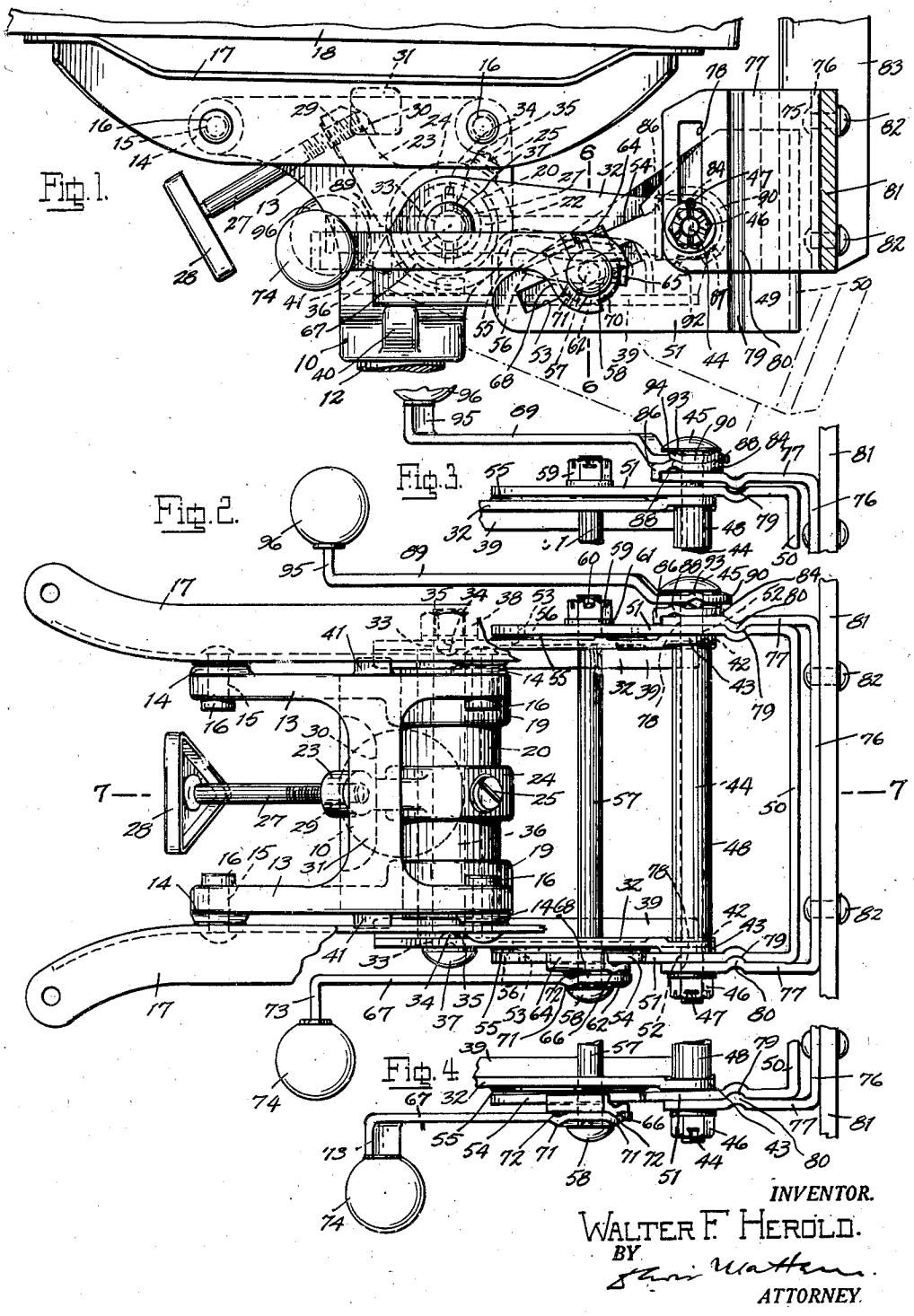


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

INVENTOR.
WALTER F. HEROLD.
BY
ATTORNEY.

July 22, 1941. W. F. HEROLD 2,249,828

POSTURE CHAIR IRON

Filed Aug. 26, 1938 4 Sheets-Sheet 2

Fig. 5.

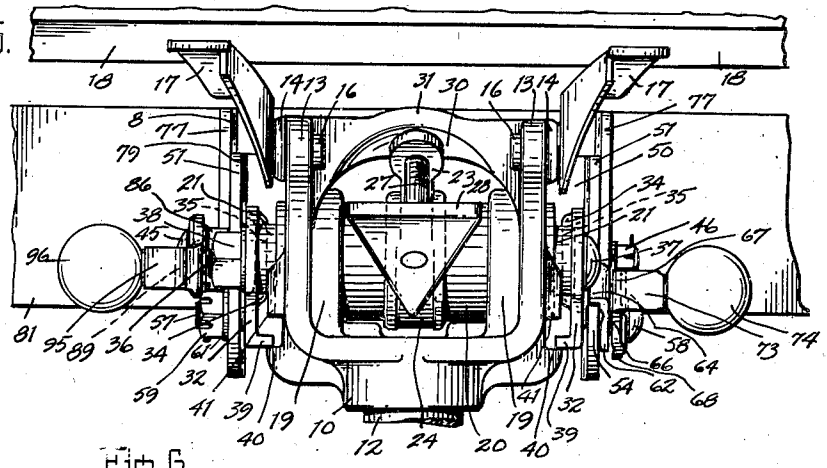


Fig. 6.

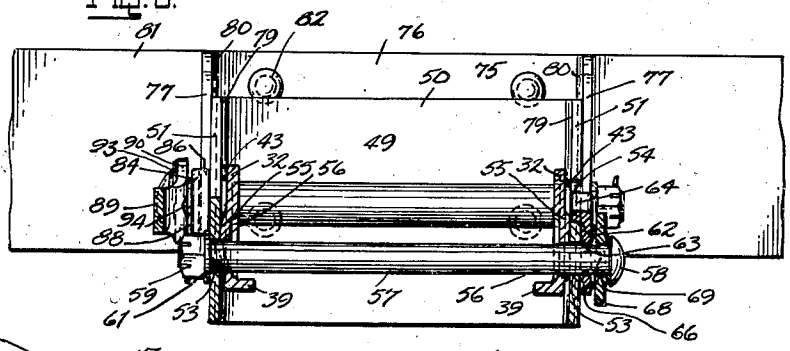
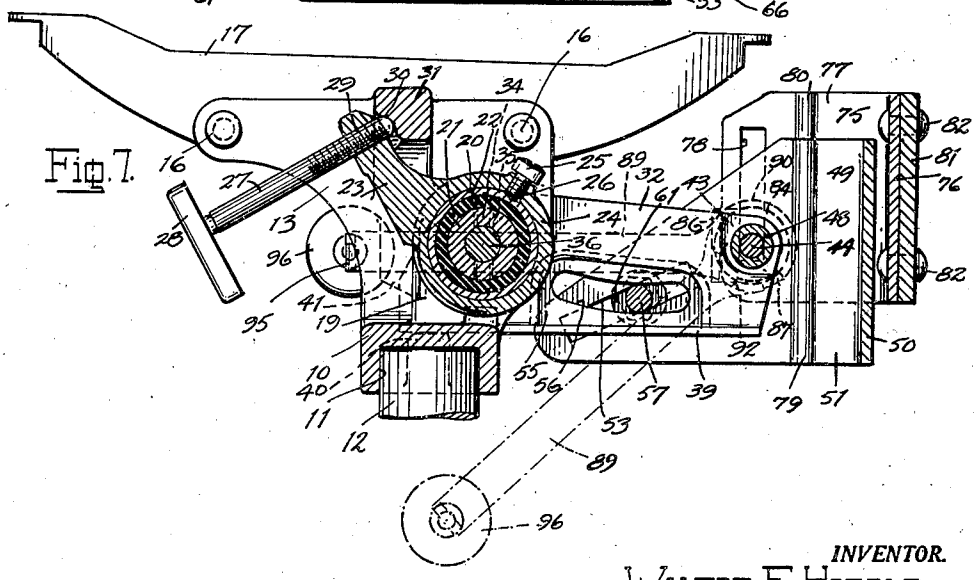


Fig. 7.



INVENTOR.
WALTER F. HEROLD.
BY
ATTORNEY

July 22, 1941. W. F. HEROLD 2,249,828

POSTURE CHAIR IRON

Filed Aug. 26, 1938 4 Sheets-Sheet 3

Fig. 8.

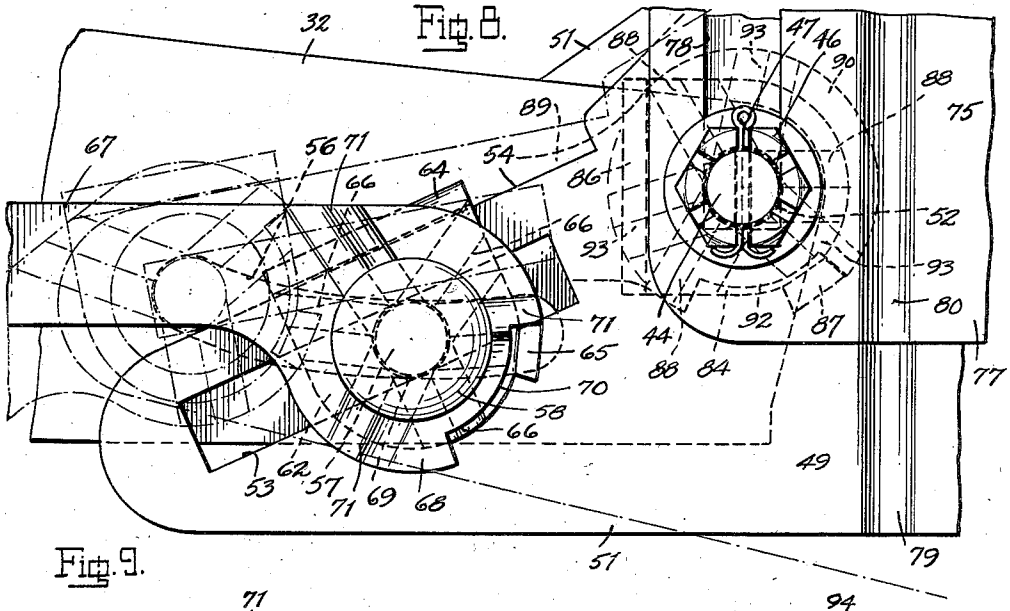


Fig. 9.

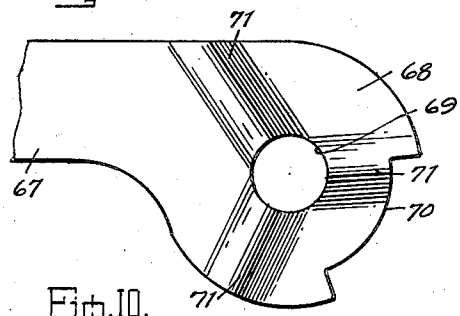


Fig. 13.

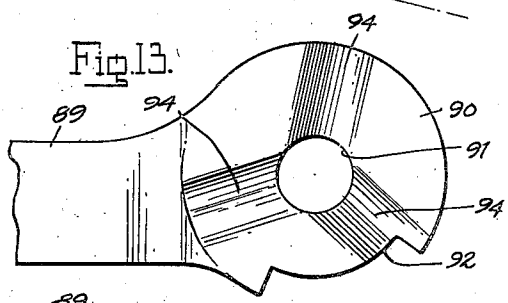


Fig. 10.

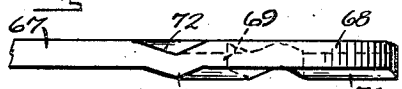


Fig. 14.

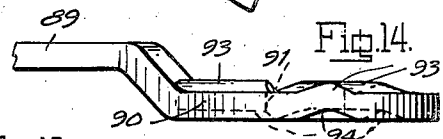


Fig. 11.

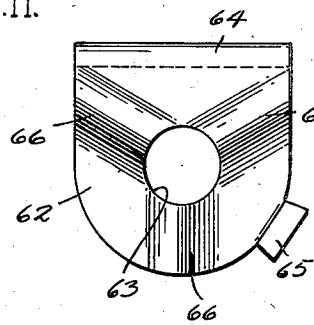


Fig. 12.

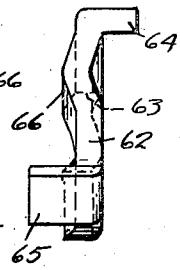


Fig. 15.

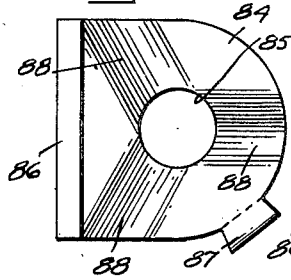
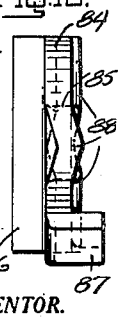


Fig. 16.



INVENTOR.
WALTER F. HEROLD.
BY
ATTORNEY.

July 22, 1941. W. F. HEROLD 2,249,828

POSTURE CHAIR IRON

Filed Aug. 26, 1938 4 Sheets-Sheet 4

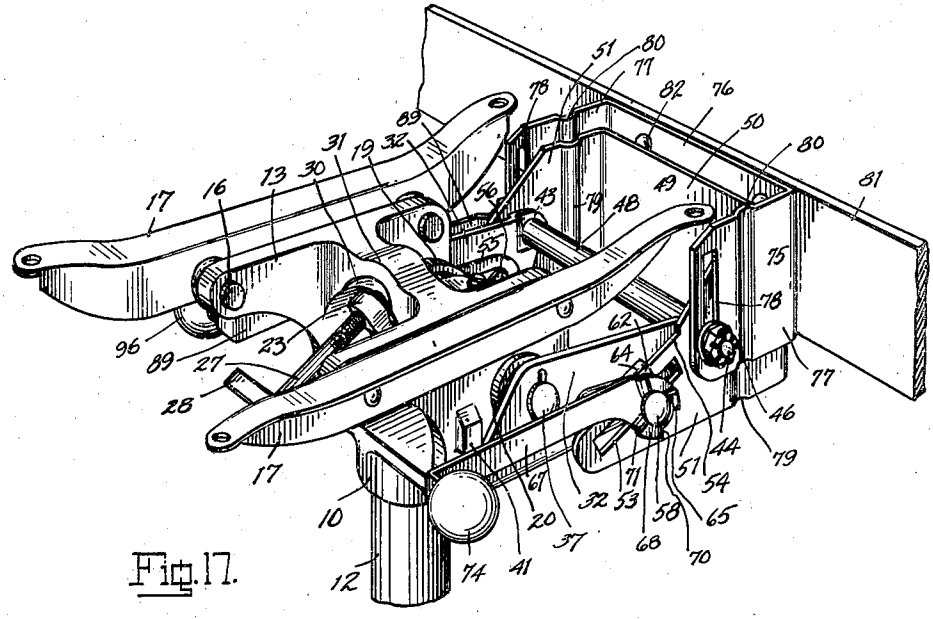


Fig. 17.

INVENTOR
WALTER F. HEROLD.
BY
ATTORNEY

Patented July 22, 1941 2,249,828

UNITED STATES PATENT OFFICE

2,249,828

POSTURE CHAIR IRON

Walter F. Herold, Bridgeport, Conn., assignor to The Bassick Company, Bridgeport, Conn., a corporation of Connecticut

Application August 26, 1938, Serial No. 226,846

17 Claims. (Cl. 155—157)

The present invention relates to an improvement in posture chair irons, particularly for office chairs of the so-called executive type, and in which the seat is swivelly mounted and the back is yieldably mounted. The invention relates particularly to adjusting means for adjusting the height and angularity of the back with respect to the yieldable back support. While the invention is illustrated in connection with a chair of the yieldable back type, it will be understood that it may be incorporated in chairs of other types, for instance, a chair of the type in which the back is normally rigidly supported.

It is an object of the invention to provide adjustment means whereby the occupant of the chair may conveniently adjust the angularity and height of the back while seated in the chair, and to this end it is proposed to provide releasing means for the two adjustments respectively arranged at each side of the chair iron conveniently accessible to the right and left hands of the occupant, such means in the illustrated embodiment including relatively long lever arms normally disposed horizontally along each side of the chair iron and having knobs arranged toward the front of the chair iron where they may be conveniently grasped to release the adjustment means by pushing down upon the levers, and locked simply by pulling the levers up into horizontal position. In locking the adjustment means the occupant will have the advantage of his own weight seated in the chair as he pulls upwardly upon the relatively long lever arms, thereby obtaining a relatively large mechanical advantage with comparatively little effort. It is further proposed to provide the actuating knobs of the lever arms at points near the tilting center so that they will remain in a substantially fixed position relatively to the seat irrespective of changes in the angle of the back.

A further object of the invention is to provide adjustment means consisting of transversely arranged guides for the height and angle adjustments, having axially operable means for causing the members to be adjusted to be axially compressed into locking and binding relation with supporting structures, such binding action being brought about by axially movable wedging means which are operable by a relatively slight rotary movement of the actuating lever means.

A further object is to provide in a chair iron an adjustable member including a slot in which is engaged the transversely disposed axially operable guide and locking means, and further to provide a floating or sliding member constituting part of the locking means arranged to have relative movement parallel to the slot, whereby such member remains in a fixed relation to the locking means irrespective of the relative position of movement between the adjustable member and the locking means. It is further proposed to provide such floating or sliding member with a stop for limiting the movement of the actuating lever.

A further object is to provide height adjustment means adapted to be clamped by the locking means into relation with vertical key tracks, which after clamping take substantially the entire strain imposed upon the back, the locking means only holding the key tracks in locked relation.

With the above and other objects in view, an embodiment of the invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of a chair iron, according to the illustrated exemplary embodiment of the invention, the locking means being shown in the normal locking position, and the dot-and-dash lines indicating the position to which the back is adapted to yield upon rearward pressure being applied thereto.

Fig. 2 is a plan view of the iron, portions of the spider arms being broken away for the sake of clearness.

Fig. 3 is a fragmentary plan view showing the locking means for the height adjusting member in released position.

Fig. 4 is a fragmentary plan view showing the locking means for the angle adjusting means in released position.

Fig. 5 is a front elevation of the chair iron.

Fig. 6 is a transverse vertical sectional view taken along the line 6—6 of Fig. 1.

Fig. 7 is a longitudinal vertical sectional view taken along the line 7—7 of Fig. 2, the dot-and-dash lines showing the released position of the lever for operating the height adjusting locking means.

Fig. 8 is a fragmentary enlarged side elevation of the locking means for the height and angle adjusting members, the dot-and-dash lines showing the angle adjusting member in a position of angular adjustment and showing the locking means in released position.

Fig. 9 is a side elevation of the outer side of

one end of the actuating lever for the angle adjusting member.

Fig. 10 is a top view thereof.

Fig. 11 is a side elevation from the outer side of the floating locking stop member associated with the lever shown in Fig. 9.

Fig. 12 is an edge view thereof from the right hand side, as shown in Fig. 11.

Fig. 13 is a side elevation from the inner side of one end of the actuating lever for the locking mechanism of the height adjusting member.

Fig. 14 is a top view thereof.

Fig. 15 is a side elevation from the inner side of the floating locking stop member associated with the lever shown in Fig. 12.

Fig. 16 is an edge view thereof from the right, as shown in Fig. 15.

Fig. 17 is a perspective view of the posture chair iron according to the invention.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the chair iron bracket member is preferably in the form of a casting, and consists of a lower portion 10 having a pocket 11 formed therein, in which is engaged the swivel post 12 which swivelly supports the iron upon the usual chair base. Spaced side portions 13—13 extend upwardly at each side from the base 11 and project forwardly and rearwardly at their upper ends where they are provided with bosses 14 having transverse holes 15 therein in which are engaged rivets 16 securing the spider arms 17—17 to the bracket, these spider arms being secured by screws or rivets to the chair seat 18.

Upon the inner side of each of the portions 13—13 there is formed a cylindrical bearing portion 19, in which the joint element for yieldably supporting the back is rotatably mounted. This joint element consists of an outer tubular member 20, an inner tubular member 21, and a cylindrical body of rubber 22 between the members 20 and 21, and which is forced between these members under such great pressure, that sufficient stress is set up therein to provide a rubber torsion member. In practice the rubber member, which before insertion into the outer tubular member 20 is of substantially larger diameter than shown, is first vulcanized to the tube 21 and is then forced under hydraulic pressure into the tube 20, the stress set up upon compression of the rubber being so great that the rubber is in effect bonded to the inner surface of the member 20, so that upon relative rotary movement between the members 20 and 21 the rubber body is placed under torsional strain. Also the compression of the rubber is such that there is no appreciable radial displacement of the inner tubular member 21 with respect to the outer tubular member 20 under the normal loads imposed upon it.

Within the space between the bearing portions 19—19, a tension adjustment lever 23 has its collar portion 24 engaged about the intermediate portion of the outer joint member 20 and rigidly secured thereto by a set screw 25, the inner end of the set screw seating in a recess 26 formed in the member 20. An adjusting screw 27 having a hand grip 28 at its end is engaged in a threaded opening 29 in the lever 23 and bears at its upper end upon the recessed surface 30 of a bridge portion 31 extending in arched relation between the side portions 13—13 of the bracket. It will be obvious that with the inner tubular member 21 held rigidly against movement in counter-clockwise direction, as it is when connected to the back supporting arms, as will presently more fully appear, that turning of the screw 27 in one direction will cause the tension adjusting arm 23 to be rotated in counter-clockwise direction thus setting up torsional stress in the rubber member 22, this stress being increased proportionately as the lever is further adjusted in counter-clockwise direction, and decreased as it is adjusted in clockwise direction. This stress is initially set up in the rubber and provides the necessary torsion to retain the back in its normal upright position and to permit it to yield rearwardly when rearward pressure is exerted thereon, such as when the occupant of the chair leans back in the chair.

The back supporting arms 32—32 are of identical but oppositely arranged form, and each is provided near its forward end with a circular aperture 33 and radially extending inwardly pressed ribs 34—34, which ribs seat in diametrically disposed grooves 35—35 provided in the projecting ends of the inner tubular member 21 of the joint element, the arms being rigidly secured to the tubular member by means of a tie bolt 36 extending through the apertured ends of the arms and the tubular member. The head 37 at one end of the tie bolt binds upon the outer surface of one of the arms 32 and a nut 38 screwed upon the other threaded end of the bolt binds upon the other arm 32 and thus secures the arms rigidly to the tubular member against relative axial and rotary movement.

Each of the arms 32 is provided at its lower edge with an inwardly bent flange 39 which gives it longitudinal stiffness and also cooperates with stop means formed upon the bracket 10, such stop means consisting of lower stop lugs 40—40 integrally formed at each side of the base portion 10 and having horizontal upper surfaces, disposed forwardly of the pivotal axis of the joint element, upon which the flanges 39 seat in the normal horizontal position of the back supporting arms 32, as shown in solid lines in Fig. 1, and upper stop lugs 41—41, integrally formed upon the side portions 13—13 of the bracket, provided with diagonally disposed under surfaces, against which the upper surfaces of the flanges 39 engage in the fully tilted position of the back supporting arms 32 to thus limit the extent of tilt, and as indicated by the dot-and-dash lines in Fig. 1.

In the rearward end of each of the arms 32 there is provided a bearing aperture 42 formed in an outwardly embossed bearing portion 43 in the upper rear corner of the arm, and through which is engaged the transverse bolt 44 which constitutes the pivotal support for the angle adjusting member, as well as the locking means for the vertical adjustment member, and as will presently more fully appear, this bolt being provided at one end with a head 45 and at its outer end with a nut 46 screwed thereon and locked by means of a cotter pin 47. A tubular spanner sleeve 48 is engaged upon the bolt 44 between the bearing portions 43—43 of the arms 32—32 and rigidly supports these arms in spaced parallel relation.

The angle adjusting member, indicated generally as 49, is in the form of a U-shaped sheet metal member consisting of a transverse vertically disposed rearward portion 50, and forwardly extending arms 51—51 which are of gradually decreasing height toward the forward end. In each of the arms 51—51 there is provided a bear-

ing aperture 52 which is engaged by the bolt 44 to pivotally support the angle adjusting member upon the bolt at each side of the arms 32—32. In each of the arms 51—51 there is provided an elongated diagonal slot 53 disposed longitudinally along a line radial to the axis of the bolt 44. One of the arms 51, the left end one as shown in the illustrated embodiment, is provided with an upper edge portion 54 disposed parallel to the slot 53 in said arm, and which is adapted to constitute a guide for the floating slide member of the locking mechanism, as will presently more fully appear.

In each of the arms 32—32, in an outwardly embossed bearing portion 55 thereof, there is provided an elongated arcuate slot 56 which is designed and arranged to intersect the slot 53 at substantially the same angle at any point of adjustment of the angle adjusting member about the bolt 44 within the range of adjustment permitted by the slots. A transverse bolt 57 is engaged through the slots 53 and 56 and has a head 58 at one end and a nut 59 screwed upon the other end and fixed by a cotter pin 60, this bolt carrying the locking means for the angle adjusting member, as will presently more fully appear, and constituting a resistance member with which the intersecting slots engage with a scissor-like gripping action.

A washer 61 is interposed between the nut 60 and the arm 51 of the angle adjusting member at one side. At the other side and in the space between the other arm of the angle adjusting member and the head 58 of the bolt, there is provided upon the bolt the manually operable locking means for exerting axial binding pressure upon the side arms 51. When such binding pressure is released, as will presently more fully appear, the side arms tend to spring outwardly, as shown in Fig. 4, so that there is a substantially loose relation between the angle adjusting member and the bracket arms 32 to enable the angle adjusting member to be adjusted about the shaft 44 as a pivot. In the locking position the side arms are forced inwardly against the bracket arms 32 with sufficient friction set up to rigidly lock the angle adjustment member against relative movement.

The locking means consists of a locking plate member 62 shown in detail in Figs. 11 and 12, having an aperture 63 for engagement with the bolt 57, and provided at one edge with an inwardly bent flange 64 which engages the edge portion 54 of the side arm 51 in parallel relation to the slot 53 forming a retaining guide which prevents turning of the locking plate relative to the angle adjusting member while at the same time permitting it to have free sliding movement along the slot 53. The plate is provided at one point in its periphery with an outwardly bent stop lug 65 adapted to cooperate with the locking lever, presently to be more fully described. A plurality of outwardly projecting radially extending ribs or projections 66 are pressed into the plate 62.

The locking lever 67, shown in detail in Figs. 9 and 10, is provided at one end with a circular plate portion 68 having a central aperture 69 for engagement by the bolt 57, this plate portion being disposed between the locking plate member 62 and the bolt head 58, and being provided in its periphery with an elongated notch 70 in which is engaged the stop lug 65, one end of the notch engaging the stop lug in the locked position of the lever and the other end engaging it in the released position of the lever. The plate portion 68 is provided with a plurality of outwardly pressed radial ribs or projections 71 which form corresponding recesses 72 at the inner side, the surfaces between these recesses being flat.

The disposition of the ribs 71 is such that in the locked position, and in which position the lever arm is substantially horizontally disposed, the ribs 71 are angularly offset with respect to the ribs 66 of the locking plate member, so that the ribs 66 are forced with a wedging action into engagement with the flat surfaces of the lever between the recesses 72, thus producing a wedge action between the side arm of the angle adjusting member and the bolt head 58 which draws the nut 60 and washer 61 tightly against one side arm of the angle adjusting member and tightly presses the other side arm inwardly against the bracket arm 32. This clamping relation is shown in plan view in Fig. 2. In the released position the ribs 71 of the locking lever and 66 of the locking plate are brought into register, so that the ribs 66 engage in the grooves 72, thus releasing the wedge and allowing the side arms of the angle adjusting member to assume a loose relation with respect to the bracket arms 32, and in which relation the angle adjusting member may be angularly adjusted. This loose relation is shown in Fig. 4.

The lever 67 extends forwardly and at its forward end is bent outwardly, as at 73, and has a knob handle 74 screwed thereon. It will be noted that this knob is in such relation that it may be readily engaged by the left hand of the occupant of the chair and pressed downwardly from the horizontal position to conveniently release the locking means, and also that it may be conveniently pulled upwardly into locking position, utilizing the advantage of the weight of the occupant of the chair in performing this operation.

The arrangement of the double slots 53 and 56 is such, when pressure is applied against the back in the tightened or locked relation of the parts, that the axial clamping action between the sides 51—51 of the angle adjusting member and the supporting arms 32—32, set up by the wedging action of the locking means, only takes a portion of the torque or moment around the axis of the shaft 44, the resultant being taken by the scissor-action between the slots and the bolt 57. As only a slight axial clamping action is required to prevent relative movement of the bolt in the slots the locking means does not have to be tightened with much force and may therefore be operated with comparative ease. However in the unlocked position with the binding action relieved, as shown in Fig. 4, there is, as the back is angularly adjusted about the axis of the shaft 44, a camming action set up between the slots 53 and 56 and the bolt 57, causing the bolt to move in one or the other direction in the slots. As shown by the dot-and-dash lines in Fig. 8 the back has been angularly adjusted rearwardly and the bolt has been moved from substantially the central portion of the slots to the left hand ends of the slots. In adjusting the back forwardly the movement of the bolt will be in the opposite direction to the right hand ends of the slots. During such adjustment it will be observed that the locking member 62 has sliding or floating movement parallel to the slot 53 and that the stop lug 65 remains in the same relation to the lever in any position of adjustment.

The height adjusting member, indicated gen-

erally as 75, is of U-shape and consists of a vertically disposed rearward portion 76 and forwardly bent side arms 77—77, each provided near its forward edge with a slot 78, extending in a generally vertical direction and parallel to the rear wall 76, these slots being engaged with the bolt 44 at the outer sides of the arms 51—51 of the angle adjusting member.

Each of the side arms 51—51 of the angle adjusting member is provided with a vertical groove 79 pressed therein at its outer surface, and which is engaged by a vertical rib 80 pressed from the outer surface of each of the side arms 77 of the height adjusting member in parallel spaced relation to the slot 78. The depth of the groove 79 and rib 80 is such that they will remain in engagement and maintain the position of the height adjusting member with respect to the angle adjusting member in both the locked and the unlocked relation, it being pointed out in this connection that in the locked relation, as shown in Fig. 2, the side arms 77 are pressed inwardly in tight engagement with the sides of the angle adjusting member by the locking means, presently to be more fully described, and that in the released position the side arms 77 spring out slightly, as shown in Fig. 3, permitting the height adjusting member to be vertically adjusted with respect to the angle adjusting member, the slot 78 moving relatively to the bolt 44 during this action.

A transverse base member 81 of the chair back is secured at its intermediate portion to the height adjusting member by rivets 82—82, this base member being bent forwardly at its outer ends and having the uprights 83 of the chair back secured thereto, the chair back itself, not shown, being carried by these uprights. The rivets 82—82 are arranged at points inwardly spaced from the side arms 77 and intermediate them, so that when rearward pressure is applied to the chair back, or as rearward strains develop in the use of the chair, the strain on the rivets will exert a bending moment on the rear wall 76 causing the side arms to be drawn more tightly into engagement with the side arms 51 of the angle adjusting member. As a consequence excessive pressure and strain on the chair back will cause the height adjusting member to be more fimly securely against displacement relatively to the angle adjusting member, thus compensating for such excessive pressure or strain.

The locking means for the height adjusting member is substantially like the locking means for the angle adjusting member in both structure and operation, and consists of a locking plate member 84, shown in detail in Figs. 15 and 16, having an aperture 85 engaged by the bolt 44 between the side arms 77 at one side of the height adjusting member and the bolt head 45, a flange 86 being bent inwardly at one edge of the plate 84 which engages the forward edge of the side arm 77 in parallel relation to the slot 78, and retains the locking plate against turning as the height adjusting member is moved during vertical adjustment. At one point in the periphery of the member 84 there is provided an outwardly bent stop lug 87 for cooperation with the locking lever, as will presently more fully appear. A plurality of outwardly pressed radial ribs 88 are provided in the plate 84, similar to the ribs 66 of the plate 62.

The locking lever 89 is provided at its rearward end with an inwardly offset circular plate portion 90 having a central aperture 91 engaged by the bolt 44 between the locking plate 84 and the bolt head 45, this plate portion being provided in its periphery with an elongated notch 92, in which is engaged the stop lug 87, one end of the notch engaging the lug in the locked position and the other end engaging it in released position. A plurality of radial outwardly projecting ribs 93 are provided in the portion 90 which engage the inner surface of the bolt head 45 and which form radial recesses 94 in the inner side having flat surfaces between them, these flat surfaces being engaged by the ribs 88 of the locking member with a wedging action in the locked position, as shown in Fig. 2, and the recesses 94 being engaged by the ribs 88 in the released position of the locking lever, as shown in Fig. 3. At the forward end of the locking lever 89 there is provided an outwardly bent portion 95 having a knob 96 screwed thereon. In the operation of locking the position of the height adjusting member the initial wedging engagement between the ribs 88 and recesses 94 will cause the side arms 77 to be flexed inwardly, as relatively long lever arms with respect to their connecting bends with the rear wall portion 76 as fulcrums, to a point where the key track ribs 80 engage firmly with the key track grooves 79, and thereupon, as the wedging locking operation continues, the portions of the side arms 77 forwardly of the ribs 80 will be further flexed inwardly about the points of engagement of the ribs 80 with the grooves 79, causing said ribs and grooves to be bindingly engaged through the action of the shorter lever arms forwardly of the ribs 80.

In the locked position the lever 89 is disposed horizontally and the knob is toward the forward end of the chair iron, where it may be readily and conveniently grasped by the right hand of the occupant of the chair to release the height adjusting member by pressing downwardly, and locked by pulling upwardly.

It will be noted that the knobs 74 and 96 of the locking levers are disposed in proximity to the axis of the joint element, about which the chair back is adapted to have swinging movement, and with respect to which the angle and height adjusting members are moved to change the adjustment, so that, irrespective of the tilted or adjusted position of the chair back the knobs will remain in substantially the same position with respect to the joint element and the seat.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be understood that changes may be made therein within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a posture chair iron, a chair seat support, a chair back supporting bracket member carried by said chair seat support, an angle adjusting member pivotally mounted on said bracket member for angular adjustment movement about a transverse horizontal axis, locking means constructed and arranged to secure the adjusted position of said angle adjusting member, manually operable elongated lever means for actuating said locking means extending forwardly at one side of said bracket member, a height adjusting chair back carrying member movably mounted on said angle adjusting member for rectilinear adjusting movement in a generally vertical direction, locking means constructed and arranged to secure the adjusted position of said

height adjusting member, and manually operable actuating lever means for actuating said last mentioned locking means extending forwardly at the other side of said bracket member, and handle means upon the forward ends of said respective first and last mentioned actuating lever means in substantially transversely aligned positions in proximity to the forward portion of said chair seat support enabling them to be respectively grasped and actuated simultaneously upwardly or downwardly by the hands of a person while seated in the chair without exerting rearward pressure of the body on the chair back and with the arms extending substantially vertically downwardly.

2. In a posture chair iron, a chair seat support, a rearwardly extending chair back supporting bracket member carried by said chair seat support, an angle adjusting member pivotally mounted upon the rearward end of said bracket member for angular adjustment movement about a transverse horizontal axis, manually operable means arranged forwardly of said axis for securing the adjusted position of said angle adjusting member, a height adjusting chair back carrying member movably mounted on said angle adjusting member for rectilinear adjusting movement in a generally vertical direction, and manually operable locking means coaxial wtih said axis movable between securing and releasing positions constructed and arranged to secure the adjusted position of said height adjusting member and adapted in the released position to permit free adjustment movement of said height adjusting member.

3. In a posture chair iron, a chair seat support, a chair back supporting bracket member carried by said chair seat support, an angle adjusting member, a transverse horizontal shaft pivotally mounting said angle adjusting member on said bracket member for angular adjusting movement about a transverse horizontal axis, manually operable means for securing the adjusted position of said angle adjusting member, a height adjusting member movably mounted on said angle adjusting member having a slot engaged by said shaft to guide the adjusting movement of said height adjusting member, and manually operable means carried by said shaft for securing the adjusted position of said height adjusting member.

4. In a posture chair iron, a chair seat support, a rearwardly extending chair back supporting bracket member carried by said chair seat support and having a slot, an angle adjusting member, a transverse horizontal shaft pivotally mounting said angle adjusting member upon the rearward end of said bracket member for angular adjusting movement about a transverse horizontal axis, said angle adjusting member projecting forwardly with respect to said shaft and having a slot intersecting said slot of said bracket member, both of said slots being non-concentric to the axis of said shaft, a horizontal shaft engaged with said slots, manually operable means carried by said last-named shaft for securing the adjusted position of said angle adjusting member, a height adjusting chair back carrying member movably mounted on said angle adjustnig member having a slot engaged by said first-named shaft to guide the adjusting movement of said height adjusting member, and manually operable means carried by said last-named shaft for securing the adjusted position of said height adjusting member.

5. In a posture chair iron, a chair seat support, a rearwardly extending chair back supporting bracket member carried by said chair seat support and having a slot, an angle adjusting member, means pivotally mounting said angle adjusting member upon the rearward end of said bracket member for angular adjusting movement about a transverse horizontal axis, said angle adjusting member having a portion projecting forwardly with respect to said pivot means disposed laterally adjacent a side of said bracket member and having a slot intersecting said slot of said bracket member, both of said slots being non-concentric to the axis of said pivot means, means engaging said slots at their intersection and adapted to have sliding movement therein during angular adjusting movement of said angle adjusting member, and means for locking the position of said last named means comprising a locking member carried by said slot engaging means, a manually operable wedge member also carried by said slot engaging means having two operative positions, and projection means carried by said locking member adapted in one operative position of said wedge member to cooperate therewith to press said angle adjustnig member and said bracket member transversely into tight frictional relation with each other and in the other position to release said binding relation, a height adjusting chair back carrying member having a portion movably mounted on said angle adjusting member at one side thereof and having a slot engaged by said pivot means of said angle adjusting member to guide the adjusting movement of said height adjusting member, a locking member carried by said pivot means, a manually operable wedge member carried by said pivot means having two operative positions, and projection means carried by said locking memer, adapted in one position of said wedge member to cooperate therewith to press said height adjusting member into frictional binding relation with said angle adjusting member and in the other position to release said binding relation.

6. In a posture chair iron, a chair seat support, a rearwardly extending chair back supporting bracket member carried by said chair seat support and having a slot, an angle adjusting member, means pivotally mounting said angle adjusting member upon the rearward end of said bracket member for angular adjusting movement about a transverse horizontal axis, said angle adjusting member having a portion projecting forwardly with respect to said pivot means disposed laterally adjacent a side of said bracket member and having a slot intersecting said slot of said bracket member, both of said slots being non-concentric to the axis of said pivot means, a shaft engaging said slots at their intersection and adapted to have sliding movement therein during angular adjusting movement of said angle adjusting member, a locking member engaged on said shaft and slidable therewith, means for locking the position of said shaft comprising a manually operable wedge lever member having two operative positions, projection means carried by said locking member adapted in one operative position of said lever member to cooperate therewith to press said angle adjusting member and said bracket member transversely into tight frictional relation with each other and in the other position to release said binding relation, and stop means carried by said locking member to limit the movement of said lever member.

7. In a posture chair iron, a chair seat support,

a rearwardly extending chair back supporting bracket member carried by said chair seat support and having a slot, an angle adjusting member, means pivotally mounting said angle adjusting member upon the rearward end of said bracket member for angular adjusting movement about a transverse horizontal axis, said angle adjusting member having a portion projecting forwardly with respect to said pivot means disposed laterally adjacent a side of said bracket member and having a slot intersecting said slot of said bracket member, both of said slots being non-concentric to the axis of said pivot means, a shaft engaging said slots at their intersection and adapted to have sliding movement therein during angular adjusting movement of said angle adjusting member, a locking member engaged on said shaft and slidable therewith, means for locking the position of said shaft comprising a manually operable wedge lever member having two operative positions, projection means carried by said locking member adapted in one operative position of said lever member to cooperate therewith to press said angle adjusting member and said bracket member transversely into tight frictional relation with each other and in the other position to release said binding relation, and stop means carried by said locking member to limit the movement of said lever member, a height adjusting chair back carrying member movably mounted on said angle adjusting member at one side thereof having a slot engaged by said pivot means of said angle adjusting member to guide the adjusting movement of said height adjusting member, a locking member engaged on said pivot means, a manually operable wedge lever member carried by said pivot means having two operative positions, projection means carried by said locking member adapted in one position of said last named lever member to cooperate therewith to press said height adjusting member into frictional binding relation with said angle adjusting member and in the other position to release said binding relation, and stop means carried by said last named locking member to limit the movement of said last named lever member.

8. In a posture chair, a supporting member comprising outwardly facing vertically disposed side walls, a height-adjusting chair-back-carrying member engaged about the sides and rear of said supporting member comprising a pair of side arms disposed outwardly of said side walls and a transverse connecting portion, said side arms being flexible relatively to said connecting portion whereby they are capable of flexing movement inwardly and outwardly respectively toward and away from said side walls, locking means connected transversely between said side walls and the forward end portions of said side arms adapted to exert transverse binding pressure on said side arms to draw them toward said side walls, and vertically disposed interlocking key track means on said side walls and said side arms disposed at transversely aligned points between said rearward transverse connecting portion and said forward locking means, adapted through the flexing of said side arms to be brought into binding engagement through the locking operation of said locking means to fix the vertical position of said height-adjusting member, and to be loosened in their engagement through the releasing operation of said locking means to permit vertical adjustment of said height-adjusting member.

9. In a posture chair iron, a chair seat support, a rearwardly extending chair back supporting bracket member carried by said chair seat support, an angle adjusting member, a transverse horizontal shaft pivotally mounting said angle adjusting member on said bracket member for anguluar adjusting movement about a transverse horizontal axis, manually operable means for securing the adjusted position of said angle adjusting member, a guide track carried by said angle adjusting member extending in a generally vertical direction, a height adjusting member including a portion disposed at one side of said height adjusting member having track means slidably engaging the guide track if said angle adjusting member, and a slot in spaced parallel relation to said track means engaged by said shaft to guide the adjusting movement of said height adjusting member, and manually operable means carried by said shaft for securing the adjusted position of said height adjusting member, said guide track and said track means adapted to remain in engagement with each other in both the secured and unsecured relation of said height adjusting member.

10. In a posture chair iron, a chair seat support, a chair back supporting bracket member carried by said chair seat support and comprising a pair of side arms projecting rearwardly, an angle adjusting member of U-shape comprising a pair of side arms disposed at the respective sides of said bracket member and a transverse connecting portion disposed rearwardly of said side arms, means mounted in the rearward end of said bracket member and engaging the sides of said angle adjusting member to pivotally support it for angular adjusting movement about a transverse horizontal axis, locking means disposed forwardly of said axis adapted to be manually actuated to exert transverse binding pressure on the side arms of said angle adjusting member to frictionally bind them to said bracket member, a height adjusting member of U-shape comprising a pair of side arms disposed outwardly of said side arms of said angle adjusting member, and a transverse connecting portion disposed rearwardly of said angle adjusting member, each side of said height adjusting member having a slot engaged by said pivot supporting means to permit relative adjusting movement of said height adjusting member, and locking means adapted to be manually actuated to exert transverse binding pressure on the side arms of said height adjusting member to frictionally bind them to said angle adjusting member.

11. In a posture chair iron, a chair seat support, a chair back supporting bracket member carried by said chair seat support and comprising a pair of side arms projecting rearwardly, an angle adjusting member of U-shape comprising a pair of side arms disposed at the respective sides of said bracket member and a transverse connecting portion disposed rearwardly of said side arms, a transverse horizontal shaft mounted in the rearward end of said bracket member and engaging the sides of said angle adjusting member to pivotally support it for angular adjusting movement about a transverse horizontal axis, said side arms of the bracket member and the angle adjusting member having intersecting slots disposed forwardly and in non-concentric relation to said shaft, a transverse horizontal shaft extending through said slots at their intersection, a locking member carried by said shaft, manually operable wedging means carried by said shaft, projection means carried by said locking member adapted in one position of said wedging means to

cooperate therewith to exert axial binding pressure on the side arms of said angle adjusting member to frictionally bind them to said bracket member and in another position to release said binding relation, a height adjusting member of U-shape comprising a pair of side arms disposed outwardly of said side arms of said angle adjusting member, and a transverse connecting portion disposed rearwardly of said angle adjusting member, each side of said height adjusting member having a vertical slot engaged by said first mentioned shaft to permit relative vertical adjusting movement of said height adjusting member, a locking member carried by said shaft, manually operable wedging means carried by said shaft, projection means carried by said locking member adapted in one position of said wedge means to cooperate therewith to exert axial binding pressure on the side arms of said height adjusting member to frictionally bind them to said angle adjusting member and in another position to release said binding relation.

12. In a posture chair iron, a supporting member and a transverse horizontal shaft adjustably carried thereby, an adjustment member adjustably disposed at the side of said supporting member and having a slot engaged with said shaft to guide the adjusting movement of said shaft, a locking wedge lever carried by said shaft, a locking member also carried by said shaft having projection means constructed and arranged to cooperate with said wedge lever, guide means cooperating between said locking member and said adjustment member adapted to retain said locking member in parallel relation to said slot upon relative movement of said adjustment member with respect to said supporting member, and stop means carried by said locking member adapted to limit the movement of said locking lever between two operative positions.

13. In a posture chair iron, a chair seat support, a chair back supporting bracket member carried by said chair seat support, an angle adjusting member pivotally mounted on said bracket member for angular adjustment movement about a transverse horizontal axis, manually operable lever means for securing the adjusted position of said angle adjusting member extending forwardly at one side of said bracket member in a generally horizontal direction to a point in proximity to the side of said chair seat support, a height adjusting chair back carrying member movably mounted on said angle adjusting member for adjustment movement in a generally vertical direction, and manually operable lever means coaxial with the pivotal axis of said angle adjusting member for securing the adjusted position of said height adjusting member extending forwardly at the other side of said bracket member in a generally horizontal direction to a point in proximity to the side of said chair seat support.

14. In a posture chair iron, a chair seat support, a chair back supporting bracket member, joint means carried by said chair seat support yieldably supporting said bracket member for swinging movement about a transverse horizontal axis, an angle adjusting member pivotally mounted on said bracket member for angular adjustment movement about a transverse horizontal axis, locking means constructed and arranged to secure the adjusted position of said angle adjusting member, manually operable lever means for effecting the securing and releasing of said locking means extending forwardly at one side of said bracket member in a generally horizontal direction to a point in proximity to the axis of said joint means, a height adjusting chair back carrying member movably mounted on said angle adjusting member for adjustment movement in a generally vertical direction, locking means constructed and arranged to secure the adjusted position of said height adjusting member, and manually operable lever means for effecting the securing and releasing of said last mentioned locking means coaxial with the pivotal axis of said angle adjusting member and extending forwardly at the other side of said bracket member in a generally horizontal direction to a point in proximity to the axis of said joint means.

15. In a posture chair, a supporting member comprising outwardly facing vertically disposed side walls, a height-adjusting chair-back-carrying member engaged about the sides and rear of said supporting member comprising a pair of side arms disposed outwardly of said side walls and a transverse connecting portion, said side arms being flexible relatively to said connecting portion wherby they are capable of flexing movement inwardly and outwardly respectively toward and away from said side walls, said side arms having in their forward portions transversely aligned vertical slots, locking means vertically fixed in said supporting member engaged through said slots and connected transversely between said side walls and the forward end portions of said side arms adapted to exert transverse binding pressure on said side arms to draw them toward said side walls, and vertically disposed interlocking key track means on said side walls and said side arms parallel to said slots and disposed at transversely aligned points between said rearward transverse connecting portion and said forward locking means, adapted through the flexing of said side arms to be brought into binding engagement through the locking operation of said locking means to fix the vertical position of said height-adjusting member, and to be loosened in their engagement through the releasing operation of said locking means to permit vertical adjustment of said height-adjusting member.

16. In a posture chair, a supporting member comprising outwardly facing vertically disposed side walls, a height-adjusting chair-back carrying member engaged about the sides and rear of said supporting member comprising a pair of side arms disposed outwardly of said side walls and a transverse connecting portion, said side arms being flexible relatively to said connecting portion whereby they are capable of flexing movement inwardly and outwardly respectively toward and away from said side walls, locking means connected transversely between said side walls and the forward end portions of said side arms adapted to exert transverse binding pressure on said side arms to draw them toward said side walls, and vertically disposed interlocking key track means on said side walls and said side arms disposed at transversely aligned points between said rearward transverse connecting portion and said forward locking means, the projection of said key track means relatively to said side arms being such that said key track means are adapted through the flexing of said side arms relatively to said transverse connecting portion to be brought into engagement through the inital locking operation of said locking means, said side arms adapted to be further flexed at their for-

ward portions relatively to said engaged key track means as fulcrums through further locking operation of said locking means to cause binding engagement of said key track means to fix the vertical position of said height adjusting member, and said key track means adapted to be loosened in their engagement through the releasing operation of said locking means to permit vertical adjustment of said height-adjusting member.

17. In a posture chair, a supporting member comprising outwardly facing vertically disposed side walls, a height-adjusting chair-back-carrying member engaged about the sides and rear of said supporting member comprising a pair of side arms disposed outwardly of said side walls and a transverse connecting portion, said side arms being flexible relatively to said connecting portion whereby they are capable of flexing movement inwardly and outwardly respectively toward and away from said side walls, locking means connected transversely between said side walls and the forward end portions of said side arms adapted to exert transverse binding pressure on said side arms to draw them toward said side walls, and said side arms adapted to be loosened in their engagement through the releasing operation of said locking means to permit vertical adjustment of said height-adjusting member, and chair-back means extending vertically upwardly from said height-adjusting member including a base portion overlying said transverse connecting portion at its rearward side and riveted thereto at points inwardly spaced from said side arms, whereby rearward pressure on said chair-back means exerts a bending moment on said transverse connecting portion to draw said side arms toward each other into binding relation with said side walls.

WALTER F. HEROLD.