

July 22, 1941.

C. C. DICKSON

2,249,750

CHAIR

Filed April 20, 1938

3 Sheets-Sheet 1

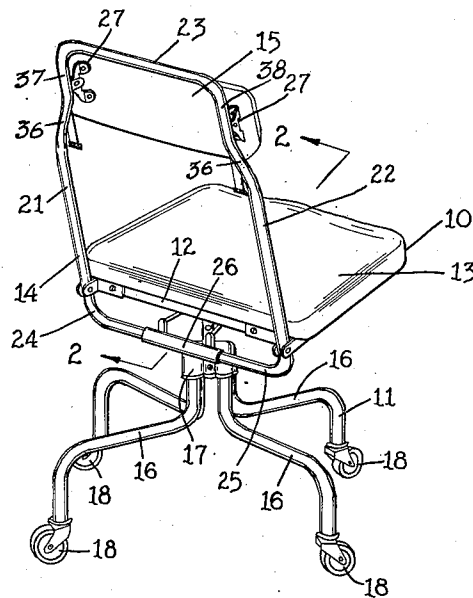


Fig. 1

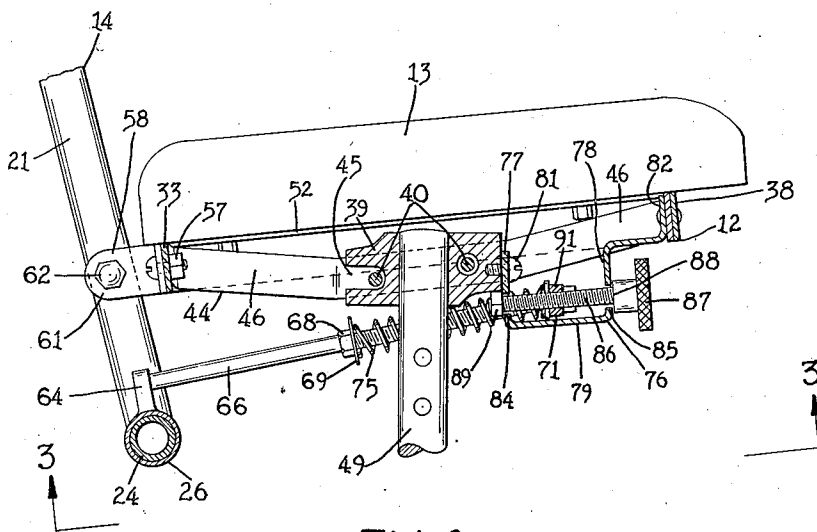


Fig. 2

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3 Sheets-Sheet 2

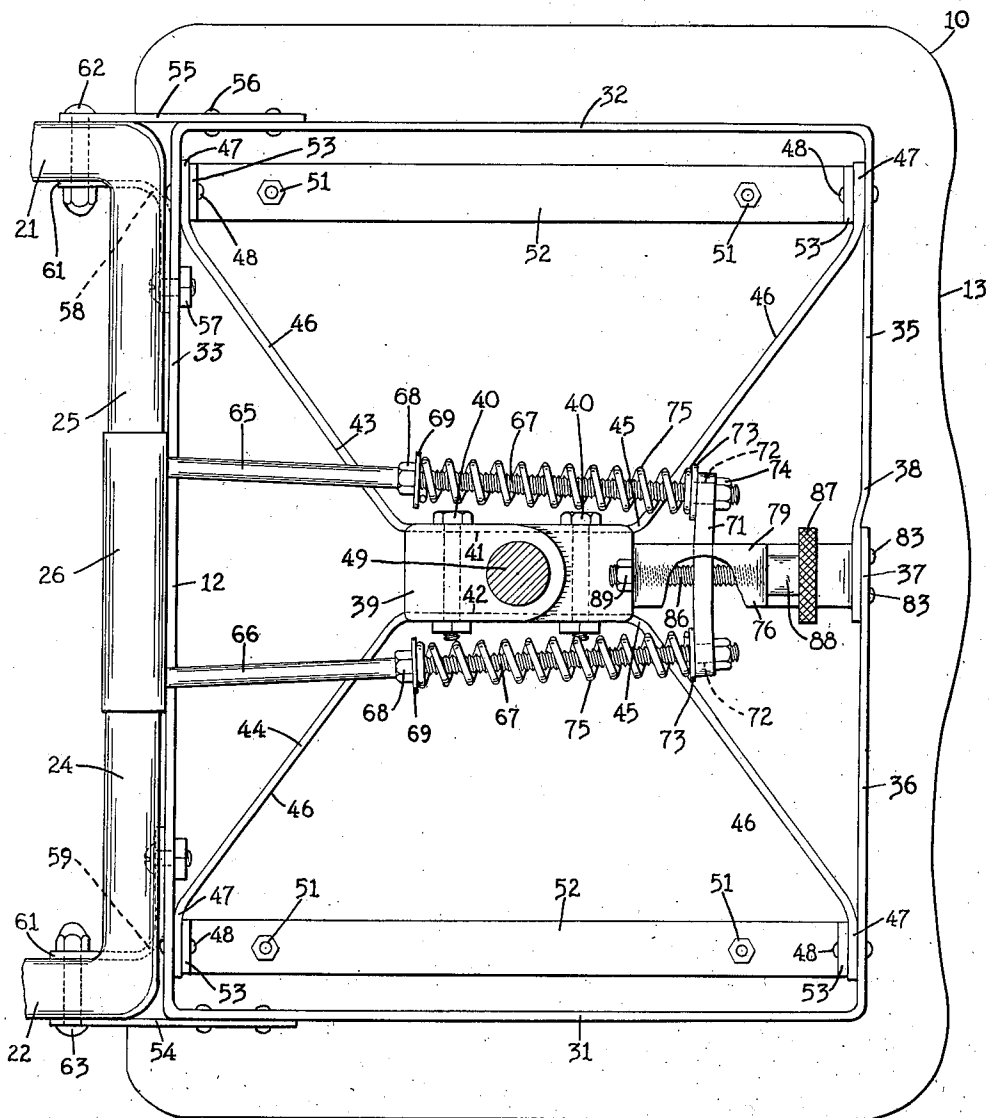


Fig. 3

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3 Sheets-Sheet 3

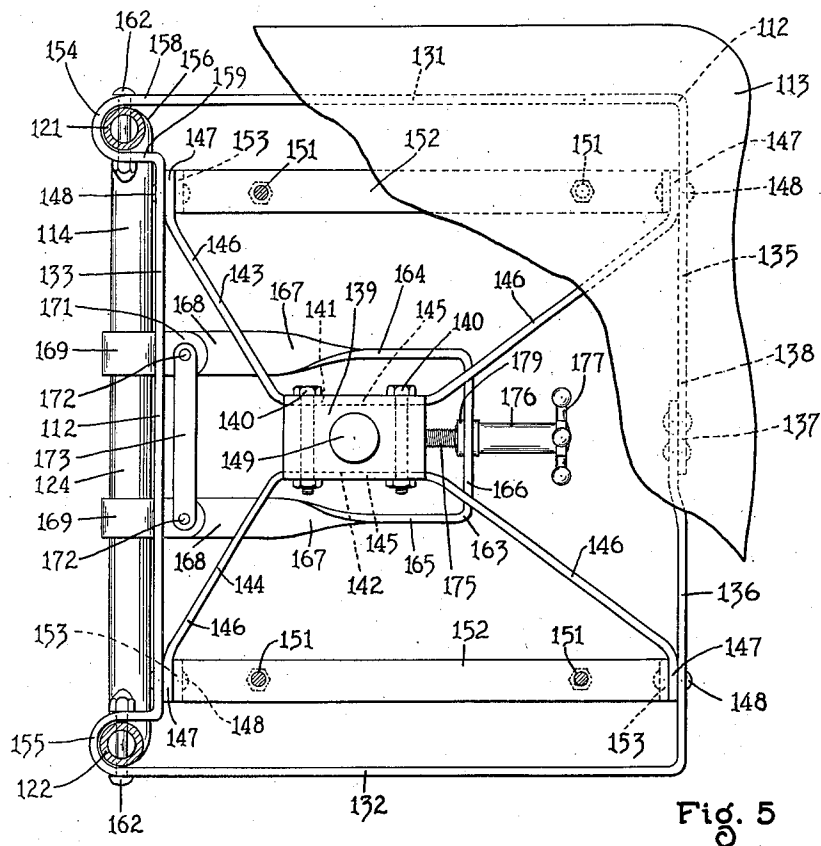


Fig. 5

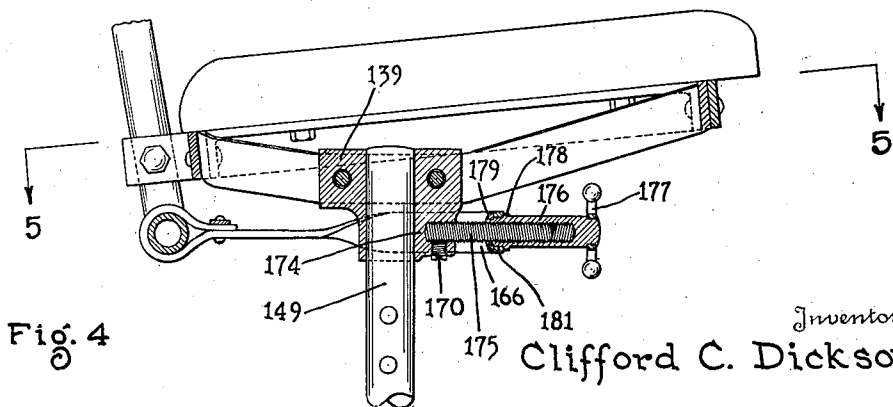


Fig. 4

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tending ears 153 formed thereon which overlie the ears 147 of brackets 143 and 144 and which are attached to the frame 112 by means of the rivets 148, previously referred to.

The vertically extending frame 114 is pivotally mounted on the frame 112 in the following manner. At the joinder of the cross frame member 133 and the longitudinal frame members 131 and 132 are formed two loops 154 and 155. These loops are constructed with spaced portions 153 and 159 which provide spaces 156 therebetween. The vertical frame members 121 and 122 are arranged within said spaces and are pivoted to the frame 112 by means of bolts 162 which pass through the portion 153 and 159 of the loops 154 and 155 and through the said upright frame members. These bolts are so positioned that the lowermost cross frame member 124 is positioned somewhat below the frame 112, as shown in Fig. 4.

The adjusting device of the form of the invention shown in Figs. 4 and 5 utilizes a yoke 163 which is constructed from a bar bent to provide two longitudinally extending legs 164 and 165 and a cross bar 166 connecting the same. The legs 164 and 165 are twisted, as designated at 167, to cause the outer portions 168 of the same to lie in the same plane. The extreme ends of the portions 168 are looped as indicated at 169 to form hinge members which encircle the tubular cross frame member 124 of the frame 114. The looped portions 169 are constructed at their extreme ends with tongues 171 which overlie the portions 168 where the same are confined to the same plane. The tongues 171 are secured to the portions 168 by means of rivets 172 which prevent hinge members 169 from opening up.

To maintain the two hinge members 169 in proper spaced relation a link 173 is employed which extends across the portions 168 of yoke 163 and which is secured thereto by means of the rivets 172. The yoke 163 is disposed beneath the brackets 143 and 144 of the frame 112 and straddles the block 139 and standard 149 the same as the device shown in the other form of the invention. The block 139, as best shown in Fig. 4, is formed at the lowermost and forward portion of the same with an outwardly projecting boss 174. This boss is threaded to receive a screw 175 which projects forwardly from said boss in a substantially horizontal position. This screw is held from rotation with reference to the boss 174 by means of a set screw 170 also threaded into said boss and engaging said screw. Threaded on the screw 175 is a sleeve 176 which has attached to its outer end a handle or knob 177 by means of which the said sleeve may be rotated. This sleeve is constructed at its other end with a shoulder 178 and has attached to its extreme end a collar 179 spaced from the shoulder 178. The cross bar 166 of the yoke 163 is formed with a hole 181 which receives the end of the spindle 176 and is held from longitudinal movement with respect to said spindle by means of shoulder 178 and collar 179.

The operation of this form of the invention is identical with that previously described. The sleeve 176 rotates in the hole 181 of the cross bar 166 and upon rotation is caused to move along the stationary screw 175. As the same moves along the said screw the yoke 163 is moved forwardly or rearwardly depending upon the direction of rotation of the sleeve 176 and the frame 114 is tilted forwardly or rearwardly corresponding therewith. As the frame 114 is moved, the hinge members 169 rotate upon the cross frame

member 114 and accommodate relative movement between the yoke 163 and frame 114.

In the construction of the yoke 163 enough play is allowed in the hole 181 and between the shoulder 178 and collar 179 so that compensation for swinging movement of yoke 163 due to oscillation of the frame 114 about the bolts 162 is had.

The construction shown in Figs. 4 and 5 is used in identically the same manner as that previously described.

The advantages of my invention are manifest. An extremely simple and practical construction is provided whereby the back rest may be moved in a back and forth direction. The knob for operating the mechanism is centrally located and is disposed at the forward portion of the seat frame so that the same is readily accessible. By means of the two rods and yoke utilized, the said knob may be centrally located. By means of the same construction, the back rest may be yieldingly held in adjusted position so that the occupant, when exerting undue force upon the back rest, may swing the same rearwardly in opposition to the action of the springs utilized. In my invention the position of the back rest becomes locked due to the threaded member for adjusting the position of the same.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a chair, a supporting standard, a seat frame connected thereto, a pivoted back rest frame extending upwardly therefrom, two rods pivotally connected to the back rest frame and straddling said standard, said rods extending forwardly of said back rest frame, a yoke secured to said rods, a U-shaped bracket having two upstanding legs providing a space therebetween, means for securing said legs to said seat frame, said yoke extending in said space, a threaded spindle passing through said legs and means on said yoke for engagement with said spindle to procure movement of said yoke upon rotation of said spindle.

2. In a chair, a supporting standard, a seat frame connected thereto, a pivoted back rest frame extending upwardly therefrom, two rods pivotally connected to the back rest frame and straddling said standard, said rods extending forwardly of said back rest frame, a yoke secured to said rods, a U-shaped bracket having two upstanding legs providing a space therebetween, means for securing said legs to said seat frame, said yoke extending in said space, a threaded spindle passing through said legs, means on said yoke for engagement with said spindle to procure movement of said yoke upon rotation of said spindle and means at the ends of said spindle for engaging said legs for restraining longitudinal movement of said spindle relative to said seat frame.

3. In a chair, a supporting standard, a seat frame connected thereto, a pivoted back rest frame extending upwardly therefrom, two rods pivotally connected to the back rest frame and straddling said standard, said rods extending forwardly of said back rest frame and being threaded throughout the forward portions of the same, a yoke slidable along the ends of said rods, nuts screwed upon said rods, coil springs encircling said rods and restrained from movement by certain of said nuts, said springs urging said

yoke into engagement with certain of said nuts and yielding upon excess pressure against the back rest and means for moving said yoke in a back and forth direction.

4. In a chair, a supporting standard, a seat 5 frame connected thereto, a pivoted back rest frame extending upwardly therefrom, two rods pivotally connected to the back rest frame and straddling said standard, said rods extending forwardly of said back rest frame and being 10 threaded throughout the forward portions of the same, a yoke slidable along the ends of said rods, nuts screwed upon said rods, coil springs encircling said rods and restrained from movement by certain of said nuts, said springs urging said yoke 15 into engagement with certain of said nuts and yielding upon excess pressure against the back rest, and a threaded member carried by means on said seat frame and engaging said yoke, said threaded member upon rotation operating to 20 move said yoke in a back and forth direction.

5. In a chair, a seat frame, a back rest frame including vertically extending frame members, pivot means intermediate the ends of said vertical frame members for pivoting said back rest frame to said seat frame, and providing depending portions on said vertical frame members, a connecting portion connected to said depending portions and disposed below said pivot, two elongated members connected to said connecting portion of the back rest frame and straddling said standard, said elongated members extending forwardly of the standard, a yoke connecting said elongated members together forwardly of the standard, a threaded member, a support for said threaded member issuing from said seat frame, said threaded member engaging said yoke and acting in conjunction with said support to move said yoke to swing said back rest frame forwardly and rearwardly.

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UNITED STATES PATENT OFFICE

2,249,750

CHAIR

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Application April 20, 1938, Serial No. 203,054

5 Claims. (Cl. 155—161)

My invention relates to chairs and particularly to chairs having a back rest, and has for an object to provide a construction by means of which the back rest may be easily and quickly adjusted in a back and forth direction.

Another object of the invention resides in providing a chair in which the back rest may be adjusted while the operator is seated on the chair.

A still further object of the invention resides in providing a chair in which the back rest becomes automatically locked in adjusted position.

A feature of the invention resides in providing a construction for adjusting the back rest of a chair including a threaded member disposed at the forward portion of the chair and immediately below the seat thereof.

A still further object of the invention resides in providing a construction in which the back rest is yieldingly held in adjusted position.

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 drawings:

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

Fig. 2 is a fragmentary sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is an inverted sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a longitudinal elevational sectional view similar to Fig. 2 of a modification of the invention.

Fig. 5 is a plan sectional view taken on line 5—5 of Fig. 4.

For the purpose of illustrating the application of my invention, I have shown in the drawings a chair adapted to be used as a stenographer's chair and which is indicated in its entirety by the reference numeral 10. This chair consists of a base 11, a seat frame 12, and a seat 13 mounted thereon. Extending upwardly from the seat frame 12 and connected to it at the rearward portion thereof is a vertical frame 14 which supports a back rest 15. The back rest 15 is adjustable in a back and forth direction and the construction by means of which this is accomplished constitutes the principal feature of this invention. The various parts of the chair 10 will now be described in detail.

The base 11 may be constructed in any desired manner. In the form of the chair shown, four tubular legs 16 are illustrated which are connected to a socketed head 17. These legs have attached to them casters 18 which rest upon the

floor. The head 17 is secured by a construction to be presently described to a frame 12 which carries the seat 13.

The vertical frame 14 consists of two vertical frame members 21 and 22, a cross frame member 23 at the upper portions of the frame members 21 and 22 and cross frame member sections 24 and 25 at the lower portions of the frame members 21 and 22. The frame 14 is constructed from a single length of any suitable tubular material which is bent to form the various members referred to. The frame sections 24 and 25 are secured together through a sleeve 26 which is welded or brazed to the said sections. The vertical frame members 21 and 22 are constructed with reverse bends 36 near their upper ends which form off-sets 37 and 38, in the said frame members 21 and 22, which are disposed inwardly of the major portions of the said frame members. The purpose of these off-sets and reverse bends will be presently more fully described. The frame members 21 and 22 are attached to the frame 12 by a construction to be presently described in detail.

The back rest 15 may be constructed in any suitable manner and has attached to it two brackets 27 which are pivotally connected to suitable supports carried by the vertical frame members 21 and 22 of frame 14. This back rest may be raised and lowered by means of a construction forming the subject matter of a co-pending application for patent.

The frame 12 is best shown in Fig. 3, and is constructed from a single bar of metal which is bent to provide two longitudinally extending frame members 31 and 32, a rearwardly extending cross frame member 33 and two forwardly extending cross frame member sections 35 and 36 which are joined together at 37 to form a single front cross frame member 38. At the center of the frame is provided a block 39 which is formed with two grooves 41 and 42 on opposite sides thereof. Two brackets 43 and 44 are attached to the block 39 and have parallel portions 45 which are received within the grooves 41 and 42. This is accomplished by means of two bolts 40 which extend jointly through the block 39 and through the parallel portions 45 of the brackets 43 and 44. These brackets have diagonally extending legs 46 which terminate in ears 47 attached to the cross frame members 33 and 38, by means of rivets 48. The block 39 has secured to it a vertically extending standard 49 which is rotatably mounted in the socketed head 17. By means of this construction, a swivel is provided

whereby the seat 10 may rotate with reference to the base 11. If desired, an adjustment may be provided whereby the standard 49 may be held in vertically adjusted position with respect to the base 11 to accommodate the height of the user. The seat 13 has attached to the underside thereof, by means of bolts or screws 51, two longitudinally extending bars 52. These bars have downturned ears 53 formed thereon which overlie the ears 47 of brackets 43 and 44 and which are attached to the frame 12 by means of the rivets 48, previously referred to. By means of this construction the seat 13 is rigidly attached to the frame 12.

The vertically extending frame 14 is pivotally mounted on the frame 12 in the following manner. Extending along the two longitudinally extending frame members 31 and 32 are two plates 54 and 55 which project rearwardly of the cross frame member 33 and are secured to said frame members. Attached to the frame member 33, by means of bolts 57, are two angles 58 and 59 which have legs 61 parallel with and spaced from the plates 54 and 55. The legs 61 are spaced a distance from the plates 54 and 55 equal to the thickness of the tubular frame members 21 and 22 which are spaced apart a distance to be received between the said plates and angles. Bolts 62 and 63 extend through the frame members 21 and 22 and the corresponding plates and angles and serve to pivotally mount the frame 14 with reference to the frame 12. It will thus be seen that, upon swinging of the frame 14, the back rest 15 may be moved toward or from the occupant of the chair when seated on the seat 13.

The lowermost portion of the frame 14, as best shown in Figs. 1 and 2, projects below the seat 13. An adjustment of the back and forth position of the frame 14 is had through the same. For this purpose, the sleeve 26 is provided with two lugs 64 which are welded thereto, and which project upwardly therefrom. Pivotaly secured to these lugs are two forwardly extending rods 65 and 66 which are threaded throughout the larger portion of the length thereof, as indicated at 67. Inasmuch as both of these rods are identical in construction, only the rod 65 will be described in detail. This rod has screwed upon it a nut 68. Adjacent this nut is a washer 69. Across the two rods 65 and 66, is a yoke 71 which is provided with two openings 72 through which the rods 65 and 66 extend. A washer 73, on the rod 65, is disposed adjacent the yoke 71 and faces the washer 69. A nut 74 is screwed upon the extreme end of the threaded portion 67 of rod 65 and engages the yoke 71. Between the two washers 69 and 73 is disposed a compression coil spring 75 which urges the yoke 71 toward the nut 74.

The yoke 71 may be moved forwardly and rearwardly by means of the following construction, which is best shown in Fig. 2. Attached to the frame 12, is a bracket or support 76, which is constructed from bar material and which is bent to provide two spaced legs 77 and 78 connected together by means of a connecting portion 79. The leg 77 is secured to the block 39 by means of a screw 81. The leg 78 is constructed with an off-set 82, which is secured to the frame member 38 by means of rivets 83 which also hold the overlapping portions 37 of said frame members together. In the legs 77 and 78 are formed holes 84 and 85 which receive a threaded spindle 86. This spindle is constructed with a knurled knob 87 which provides a shoulder 88 bearing against the outer surface of leg 78. A nut 89 is

screwed upon the other end of the spindle 86 and engages the leg 77. By means of the shoulder 88 and nut 89, the spindle 86 is held from longitudinal movement with respect to the bracket 76. Nut 89 may be secured to the spindle 86 by riveting the end of the said spindle or by means of a set screw or in any other suitable manner.

The yoke 71 extends through the space between the legs 77 and 78 of bracket 76 and is threaded at 91 to receive the spindle 86. It will thus readily become apparent that, when spindle 86 is rotated through the knob 87 the yoke 71 is moved forwardly and rearwardly. This causes the frame 14 to swing about the bolts 62 and 63 as pivots and the back rest 15 to be moved in a back and forth direction.

The method of using the invention is obvious. While the occupant is seated upon the seat 13, the knurled head 87 of spindle 86 may be readily manipulated and the said spindle rotated to move the back rest 15 toward or from the occupant. In this manner the proper adjustment of the back rest is readily procured. Further adjustment may be had by means of nuts 74, while adjustment of the spring tension may be had by nuts 68. If the spring action is not desired, the springs 75 may be dispensed with and nuts 68 moved up to the yoke 71.

In Figs. 4 and 5 I have shown a modification of the invention in which certain parts of the frame have been constructed somewhat differently from the frame shown in Figs. 1, 2 and 3. Otherwise, the remainder of the chair, with the exception of the adjusting mechanism, is identical and the description thereof will not be repeated and the same reference numeral preceded by the digit 1 will be used to describe corresponding parts.

The frame 114 of the chair shown in Figs. 4 and 5 consists of two vertical frame members 121 and 122 and a single cross frame member 124 at the lowermost portion of the same. The tubular material from which this frame is constructed is preferably joined elsewhere than at the cross frame member 124. Such joint may be conveniently placed in the upper frame member of the frame 114 which is not disclosed in the drawings.

The frame 112, which is best shown in Fig. 5, is similarly constructed from a single bar of metal which is bent to provide two longitudinal extending frame members 131 and 132, a rearwardly extending cross frame member 133 and two forwardly extending cross frame member sections 135 and 136 which are joined together at 137 to form a single front cross member 138. At the center of the frame is provided a block 139 which is constructed with grooves 141 and 142 on opposite sides thereof. Two brackets 143 and 144 are attached to the block 139 and have parallel portions 145 which are received within the grooves 141 and 142. Attachment is accomplished by means of two bolts 140 which extend jointly through the block 139 and through the parallel portions 145 of the brackets 143 and 144. The brackets 143 and 144 have diagonally extending legs 146 which terminates in ears 147, attached to the cross frame members 133 and 138 by means of rivets 148. The block 139 has secured to it a vertically extending standard 149 which is rotatably mounted in the socketed head of the base of the chair in identically the same manner as shown in Fig. 1. The seat 113, of the chair, has attached to the underside thereof, by means of bolts or rivets 151, two longitudinally extending bars 152. These bars have downwardly ex-