June 10, 1958 C. U. DEATON 2,838,095

POSTURE CHAIRS

Filed Dec. 7, 1955 5 Sheets-Sheet 1

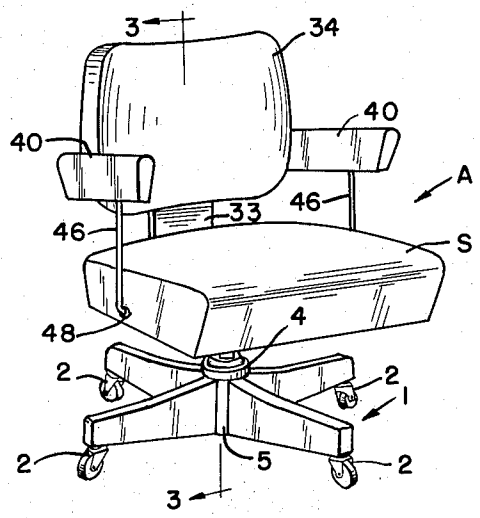


FIG-1

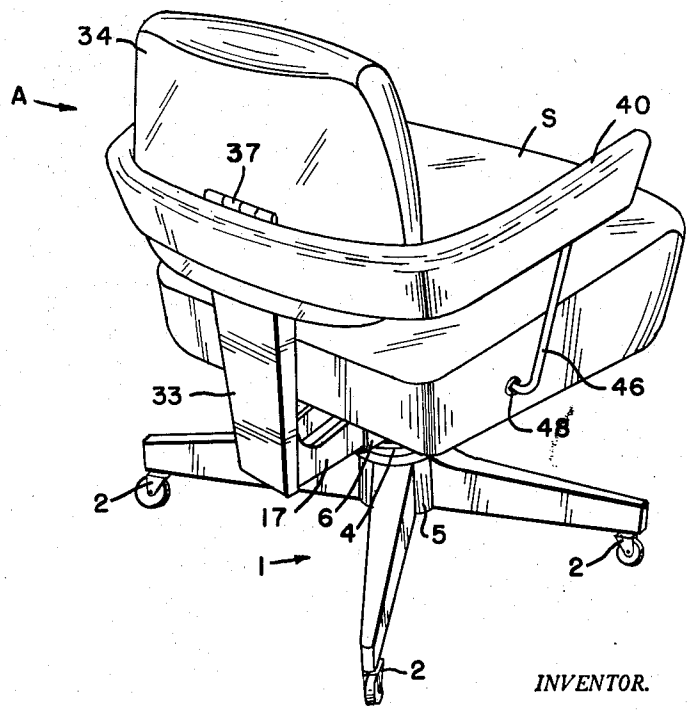


FIG-2

INVENTOR.

BY CHARLES U. DEATON

Alfred W. Critchfield

ATTORNEY

June 10, 1958 C. U. DEATON 2,838,095

POSTURE CHAIRS

Filed Dec. 7, 1955 5 Sheets-Sheet 2

FIG-3

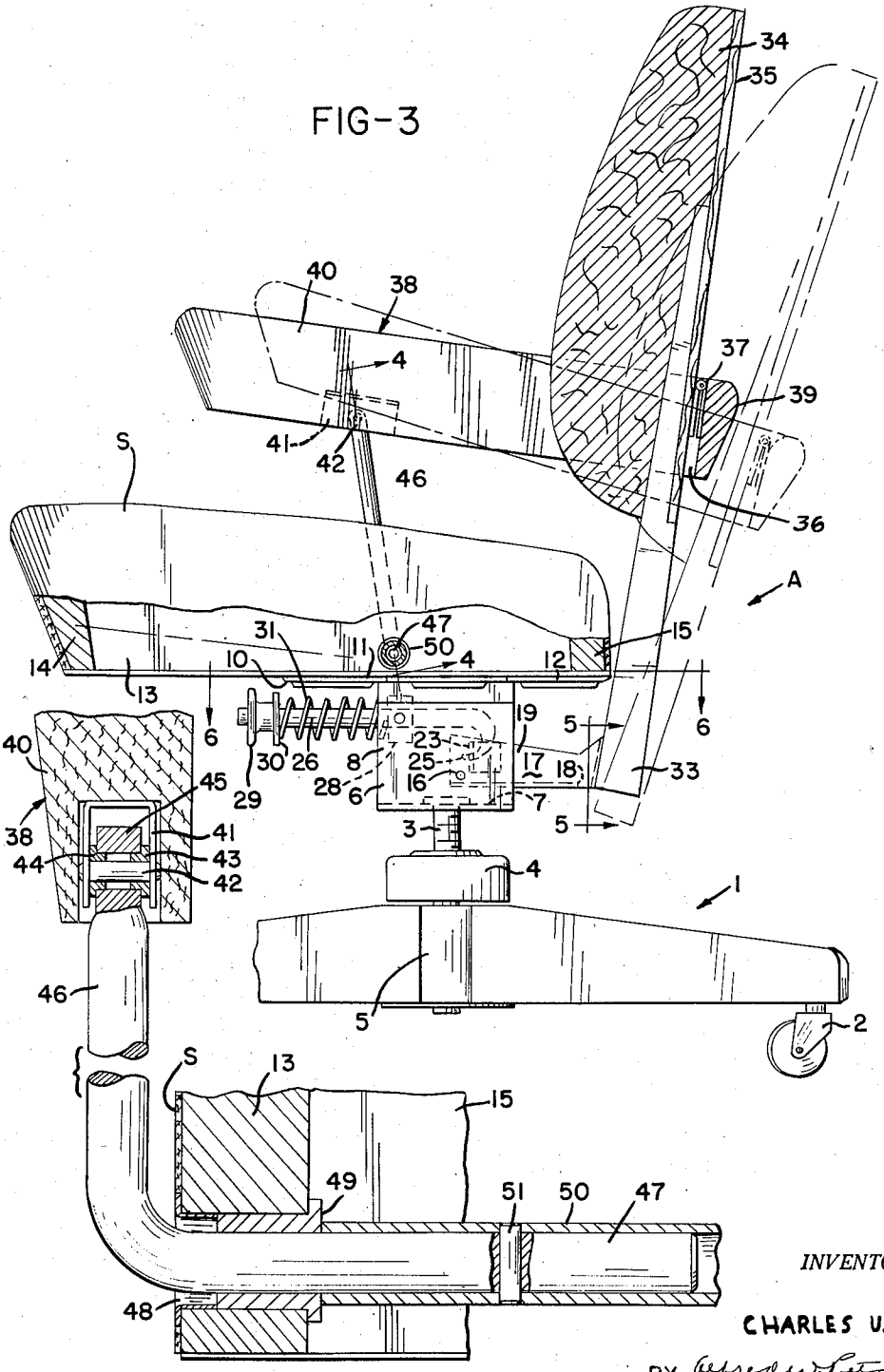


FIG-4

INVENTOR.

CHARLES U. DEATON

BY Alfred W. Pitchford

ATTORNEY

June 10, 1958 C. U. DEATON 2,838,095

POSTURE CHAIRS

Filed Dec. 7, 1955 5 Sheets-Sheet 3

FIG-6

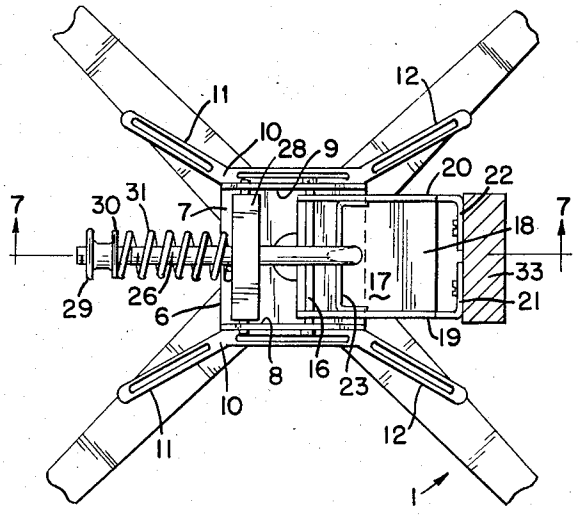
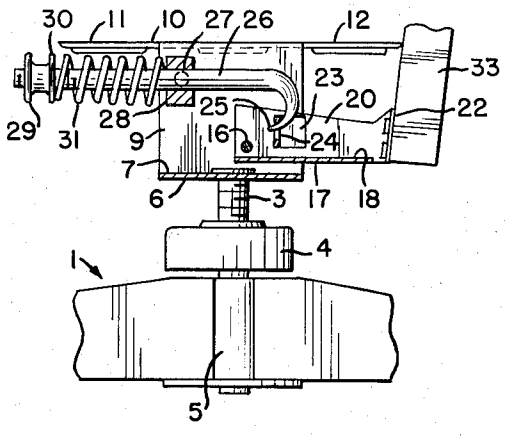


FIG-7



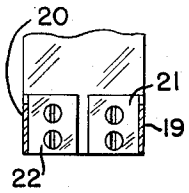


FIG-5

INVENTOR.

CHARLES U. DEATON

BY Alfred W. Pitchford

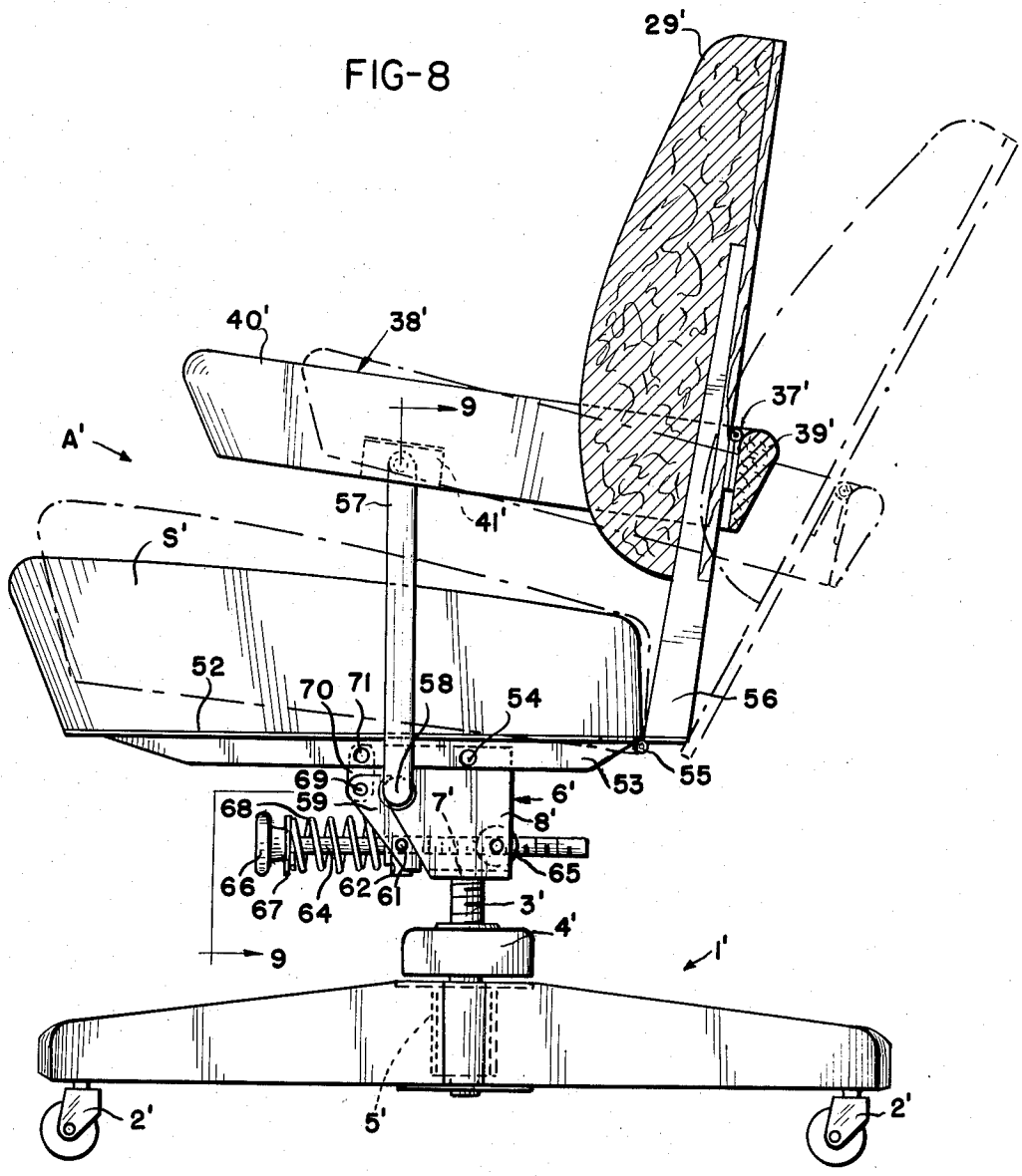
ATTORNEY

June 10, 1958 C. U. DEATON 2,838,095

POSTURE CHAIRS

Filed Dec. 7, 1955 5 Sheets-Sheet 4

FIG-8



INVENTOR.

CHARLES U. DEATON

BY Alfred W. Petcher

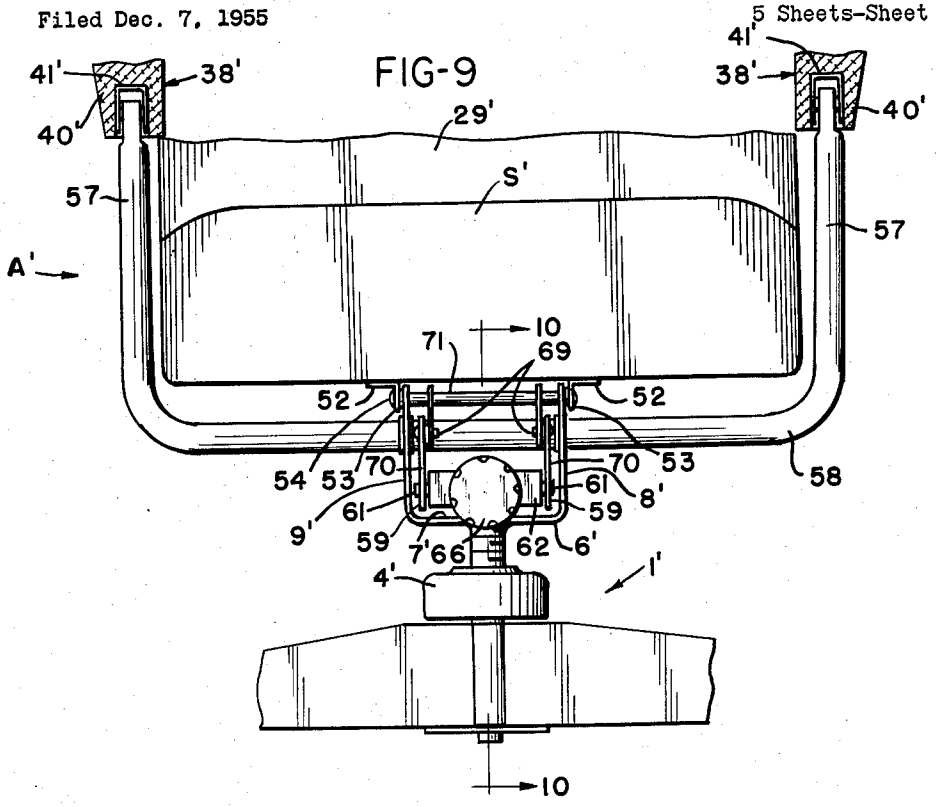
ATTORNEY

June 10, 1958 C. U. DEATON 2,838,095

POSTURE CHAIRS

Filed Dec. 7, 1955 5 Sheets-Sheet 5

FIG-9



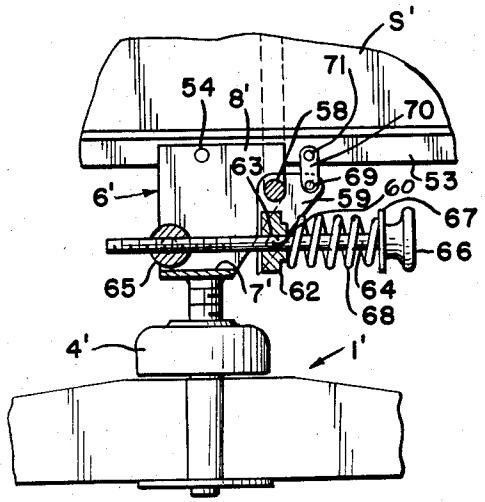


FIG-10

INVENTOR.
CHARLES U. DEATON
BY Alfred W. Petcher
ATTORNEY

United States Patent Office

2,838,095

Patented June 10, 1958

2,838,095

POSTURE CHAIRS

Charles U. Deaton, Denver, Colo.

Application December 7, 1955, Serial No. 551,653

6 Claims. (Cl. 155—157)

This invention relates in general to certain new and useful improvements in chairs and, more particularly, to a posture chair.

It is the primary object of the present invention to provide a chair having a seat, back, and arms which are removably and resiliently interconnected so as to readily and comfortably conform to the posture of the individual seated therein and will yield to the individual's movements so as to support the body in various sitting positions.

It is another object of the present invention to provide a chair of the type stated which is simple and economical in construction and lends itself readily to incorporation in attractive furniture designs of modern appearance.

It is a further object of the present invention to provide a chair of the type stated in which the arm rests will maintain a desirable angular position in relation to the seat and back through all the various positions into which the chair can be shifted.

With the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a front perspective view of a posture chair constructed in accordance with and embodying the present invention;

Figure 2 is a rear perspective view of a posture chair constructed in accordance with and embodying the present invention;

Figure 3 is a vertical sectional view taken along line 3—3 of Figure 1;

Figures 4, 5, and 6, are fragmentary sectional views taken along lines 4—4, 5—5, and 6—6, respectively, of Figure 3;

Figure 7 is a fragmentary sectional view taken along line 7—7 of Figure 4;

Figure 8 is a side elevational view of a modified form of posture chair constructed in accordance with and embodying the present invention;

Figure 9 is a transverse sectional view taken along line 9—9 of Figure 8; and

Figure 10 is a fragmentary sectional view taken along line 10—10 of Figure 9.

Referring now in more detail and by reference characters to the drawings, which illustrate a preferred embodiment of the present invention, A designates a posture chair of the so-called "swivel" or "executive" type and comprises a conventional four-branched or cross-shaped base frame 1 supported upon the floor by means of casters 2 and centrally provided with a conventional vertically adjustable chair-screw 3 and adjustment collar 4 which is mounted upon a conventional swivel bearing 5. Inasmuch as the base and swiveling structure of the chair A do not form a part of the present invention, they are not shown or described in more particular detail herein.

Rigidly mounted upon the upper end of the chair-screw 3 is a U-shaped swivel bracket 6 having a horizontal bight 7 and vertically upstanding spaced parallel flanges 8, 9. Spot welded on the outwardly presented lateral faces of the flanges 8, 9, are V-shaped seat irons 10 having angularly outwardly branching arms 11, 12, for rigid attachment to the under side of an upholstered seat S, the under structure of which consists essentially of two spaced parallel side frame members 13 connected together by transversely extending front and rear frame members 14, 15, respectively. Rockably mounted between the flanges 8, 9, upon a pintle pin 16 is a rearwardly extending arm 17 which is stamped or otherwise suitably formed to include a horizontal bight 18 and spaced vertical flanges 19, 20, which project rearwardly beyond the bight 18 and are turned inwardly toward each other in the provision of attachment plates 21, 22, respectively.

Welded to and extending transversely between the flanges 19, 20, is a cross-plate 23 having a centrally located aperture 24 for receiving the hooked end 25 of a tensioning screw 26 which extends more or less horizontally forwardly and projects slidably through an aperture 27 formed centrally in a cross-bar 28, which is, in turn, pivotally mounted at its opposite ends in the flanges 8, 9. At its forward end, the tensioning screw 26 is threaded for receiving a large hand-nut 29 which is integrally provided with a rearwardly presented shoulder 30 abuttingly engaged against the forward end of a heavy compression spring 31 which is encirclingly disposed around the forwardly projecting end of the tensioning screw 26 and at its rear end abuts against the forwardly presented face of the cross-bar 28, all as best seen in Figures 6 and 7.

Rigidly attached, by any suitable means, to the attachment plates 21, 22, and extending vertically upwardly therefrom is a relatively narrow back post 33 which is provided at its upper end with a relatively large upholstered chair back 34, the latter being conventionally built upon and around a rigid back panel 35 formed of plywood, or other suitable material.

The rearwardly presented face of the seat back is provided centrally of, and adjacent to its lower margin, with a shallow, somewhat rectangular recess 36 for receiving a leaf-type hinge 37 which is also secured to and rockably supports a U-shaped arm-forming element 38, integrally consisting of a bight-like element 39 arcuately merging at its opposite ends into two forwardly projecting parallel arm rests 40. Recessed into the under faces of the arm rests 40 approximately one-third of the way to the rear of the forward ends thereof are downwardly opening metallic socket elements 41 provided with transversely extending pins 42 having spaced bearing collars 43 for journal-forming engagement in apertures 44 which extend transversely through the flattened upper ends 45 of upright rods 46, the lower ends of which are bent around a rather short radius to form inwardly projecting horizontal stub shafts 47. These stub shafts 47 extend through apertures 48 formed in the side frames 13 and are supported in bronze bearing bushings 49. The stub shafts 47 are also axially aligned with each other and project into a tubular cross-shaft 50 which extends horizontally between the bushings 49 and is fastened to the stub shafts 47 by means of pins 51. It will be noted in this connection that the end faces of the tubular shaft 50 abut against the bronze bushings 49 so as to hold the stub shafts 47 against axial translation.

In use, the hand-nut 29 can be adjusted to apply any desired amount of tension upon the compression spring 31 which will thereupon hold the arm 17 and the associated back supporting post, together with the chair back 34, in upwardly and forwardly shifted so-called "upright" position to apply a desired amount of support-

ing pressure against the back of the individual who is seated in the chair. As the individual leans back to a more relaxed or reclined position, the chair back 34 will be pushed backwardly and the arm 17 will swing downwardly around the pintle 16 against the counter-balancing force of the spring 31 to the position shown in dotted lines in Figure 3. It will be noted that the seat S will retain its initial position and the arm rests will assume a comfortably spaced almost parallel relation thereto during the entire range of movement of the seat back 34, thus contributing materially to the posture comfort of the chair.

It is also possible to provide a modified form of posture chair A', as shown in Figures 8, 9 and 10, which is substantially similar to the previously described posture chair A and includes a conventional four-branched or cross-shaped base frame 1' supported upon the floor by means of casters 2' and centrally provided with a conventional vertically adjustable chair-screw 3' and adjustment collar 4', which is mounted upon a conventional swivel bearing 5'.

Rigidly mounted upon the upper end of the chair-screw 3' is a U-shaped swivel bracket 6' having a U-shaped bight 7' and spaced parallel flanges 8', 9'. Rigidly mounted upon the under face of an upholstered seat S' are seat irons 52 having downwardly extending vertical flanges 53 which are pivotally mounted upon a pintle pin 54 which extends through, and is supported by, the flanges 8', 9'. At their rearward ends, the seat irons 52 are provided with a hinge 55 which is rigidly secured to the lower end of an upwardly extending back supporting post 56, the latter being provided at its upper end with a chair back 29', substantially similar in all respects to the previously described chair back 29, and provided upon its rear face with a hinge 37' which rockably supports an arm rest 38', which is substantially similar to the previously described arm rest 38, and includes a bight portion 39' and forwardly projecting arms 40'.

Recessed into the under faces of the arms 40' are downwardly opening socket elements 41' which rockably support the upper ends of uprights 57 which are integrally connected at their lower ends by a transversely extending horizontal bight-element 58 which extends through and is bearinged in the flanges 8', 9'. Welded or otherwise rigidly attached to the bight-element 58 along that portion of its length which extends between the flanges 8', 9', are depending bracket plates 59 which are transversely spaced from each other and are provided at their lower ends with apertures 60 for swiveling engagement with axial projections 61 of a cross-bar 62, which is substantially similar to the previously described cross-bar 28, and is provided with a central aperture 63 for slidably accommodating a tension rod 64 which extends therethrough and at its rear end is threadedly engaged in a swivel nut 65 which is also rockably mounted between the flanges 8', 9'. At its forward end, the tension rod is rigidly provided with a large knob 66 and washer 67 which bear against the forward end of a compression spring 68 disposed encirclingly around the tension rod 64 and abutting at its rear end against the forwardly presented face of the cross-bar 62.

As will be seen from Figure 8, the brackets 59 are shaped somewhat in the form of a bell crank and are provided at their upper ends forwardly of the bight-element 58 with transversely extending horizontal pivot pins 69 which are rockably connected by means of vertical links 70 to an auxiliary pintle pin 71 mounted in, and extending transversely between, the depending flanges 53 of the seat irons 52.

In use, the knob 66 is turned to adjust the tensioning screw 64 and compression spring 68 to any desired degree in the usual manner and the chair A' will normally assume the upright position shown in full lines in Figure 8. When an individual is seated in the chair A', the chair back 29' will thus be held comfortably and supportingly against the individual's back and will swing backwardly to the position shown in dotted lines in Figure 8 or any intermediate position as the individual leans rearwardly. It will be noted that as the chair back 29' swings rearwardly, the seat S' will tilt upwardly at its forward margin and drop downwardly at its rearward margin, and, similarly, the arms 40' will swing upwardly and rearwardly into a comfortably disposed relative position with respect to the seat S' and the chair back 29'.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the posture chair may be made and subtituted for those herein shown and described without departing from the nature and principle of my invention.

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

1. A posture chair comprising upright support means, seat supporting bracket means mounted on the upper end of the support means, a seat mounted on said bracket means to form, in combination therewith, a seating assembly, an arm pivotally mounted on the bracket and extending rearwardly therefrom a back member mounted on the said arm and extending upwardly at the rear of the seat, spring means operatively associated with the bracket means for biasing the back member forwardly into an upright position in relation to the seat member, a U-shaped arm rest hingedly mounted on the rear of the back member and having a pair of forwardly extending arms, and means hingedly connected to the underside of the arms forwardly of the back member, said last-mentioned means also including horizontally extending bight means journaled in the seating assembly for causing the arm rest means to change its position in relation to both the seat and back member as the back member swings rearwardly against the bias of the spring means.

2. A posture chair comprising upright support means, seat supporting bracket means mounted on the upper end of the upright support means, a seat mounted on said bracket means to form, in combination therewith, a seating assembly, an arm pivotally mounted on the bracket and extending rearwardly therefrom a back member mounted on the said arm and extending upwardly at the rear of the seat, spring means operatively associated with the bracket means for biasing the back member forwardly into an upright position in relation to the seat member, a U-shaped arm rest having a pair of arm-forming members extending forwardly on either side of the back member in upwardly spaced relation to the seat and being connected by a transversely extending bight which is, in turn, hingedly mounted on the rear of the back member, and U-shaped means having upwardly extending legs which are respectively hingedly connected at their upper ends to each arm-forming member forwardly of the back member, said U-shaped means also having substantially horizontal bight means journaled in the seating assembly for causing the arm rest means to change its position in relation to both the seat and back member as the back member swings rearwardly against the bias of the spring means.

3. A posture chair comprising pedestal means having a vertically adjustable upright post, a seat supporting bracket mounted on the upper end of the post, a seat mounted on said bracket, a back member hingedly mounted on the rear end of the bracket separately of the seat member so as to swing rearwardly and downwardly independently of the seat member, said back member extending upwardly from the bracket rearwardly of the seat, spring means operatively associated with the bracket for biasing the back member forwardly into an upright position in relation to the seat member, a U-shaped arm rest means having a substantially horizontal bight member extending transversely across and being hingedly mounted on the back member, said arm rest means having

a pair of forwardly extending arms each provided with downwardly presented recesses located forwardly of said back member, and rod-like members hingedly connected at their upper ends in said recesses and having opposed horizontally extending stub-shaft portions journaled in the seat for causing the arms to change position in relation to both the seat and back member as the back member swings rearwardly against the bias of the spring means.

4. A posture chair comprising pedestal means, seat supporting bracket means mounted on the upper end of the pedestal means, a seat rigidly mounted on said bracket means, an arm rockably mounted on said bracket and extending rearwardly thereof, a back member secured to said arm separately of the seat member so as to swing rearwardly and downwardly independently of the seat member, said back member extending upwardly from the rear of the seat, a tensioning screw shiftably mounted on said bracket and being provided with means for engaging said arm, spring means operatively associated with the tensioning screw for biasing the back member forwardly into an upright position in relation to the seat member, a U-shaped arm rest means having a substantially horizontal bight member extending transversely across and being hingedly mounted on the back member and having forwardly presented arms, and means hingedly connected to the arms forwardly of the back member and also hingedly mounted upon the seat for causing the arm rest means to change its position in relation to both the seat and back member as the back member swings rearwardly against the bias of the spring means.

5. A posture chair comprising pedestal means having a vertically adjustable upright post, a seat supporting bracket mounted on the upper end of the post, a seat mounted on said bracket, an arm rockably mounted on said bracket and extending rearwardly thereof, a back member rigidly secured to said arm for rearward and downward swinging movement independently of the seat member extending upwardly from the rear of said seat, a cross plate secured to said arm and being provided with an aperture, a tensioning screw shiftably mounted on said bracket and being provided with a hook-like portion projecting through said aperture, spring means encircling said tensioning screw for biasing the back member forwardly into an upright position in relation to the seat member, a U-shaped arm rest means having a substantially horizontal bight member extending transversely across and being hingedly mounted on the rear of the

back member, said arm rest means including a pair of forwardly extending arm-forming members each provided with downwardly presented recesses located forwardly of said back member, and rod-like members hingedly connected at their upper ends in said recesses and having opposed horizontally extending stub-shaft portions journaled in the seat for causing the arms to change position in relation to both the seat and back member as the back member swings rearwardly against the bias of the spring means.

6. A posture chair comprising pedestal means having a vertically adjustable upright post, a seat supporting bracket mounted on the upper end of the post, a seat mounted on said bracket, an arm rockably mounted on said bracket and extending rearwardly thereof, a back member rigidly secured to said arm for rearward and downward swinging movement independently of the seat member extending upwardly from the rear of said seat, a cross plate secured to said arm and being provided with an aperture, a tensioning screw shiftably mounted on said bracket and being provided with a hook-like portion projecting through said aperture, spring means encircling said tensioning screw for biasing the back member forwardly into an upright position in relation to the seat member, a U-shaped arm rest means having a substantially horizontal bight member extending transversely across and being hingedly mounted on the rear of the back member, said arm rest means including a pair of forwardly extending arm-forming members each provided with downwardly presented recesses located forwardly of said back member, rod-like members hingedly pinned at their upper ends within said recesses and having spaced aligned horizontally extending stub-shaft portions journaled in said seat, and a hollow cross shaft joining said stub-shaft portions and being rigidly connected thereto, whereby said rod-like members cause the arms to change position in relation to both the seat and back member as the back member swings rearwardly against the bias of the spring means.

References Cited in the file of this patent

UNITED STATES PATENTS

229,701	Hartley	July 6, 1880
235,184	Wakefield	Dec. 7, 1880
2,329,327	Boerner	Sept. 14, 1943
2,447,601	Sengpiel	Aug. 24. 1948
2,547,455	Freeman	Apr. 3, 1951
2,587,176	Larson	Feb. 26, 1952