Dec. 13, 1938. H. W. SHELDRICK 2,140,058

CHAIR IRON

Filed June 9, 1936

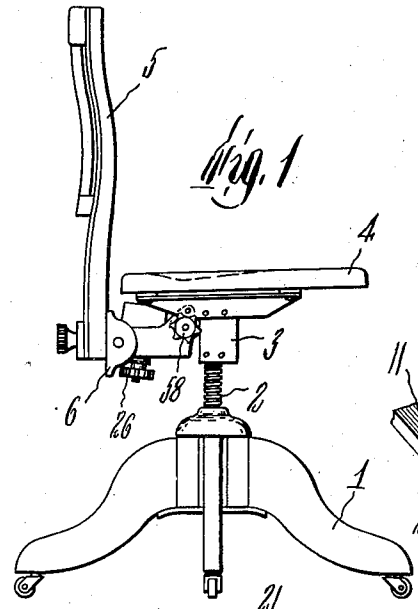


Fig. 1.

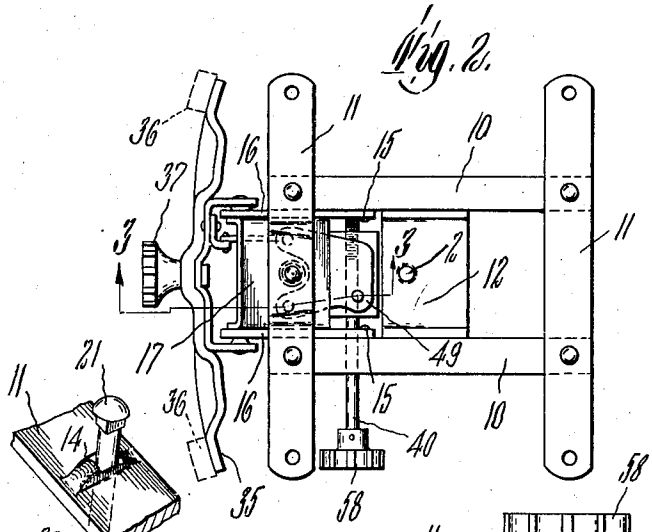


Fig. 2.

Fig. 9.

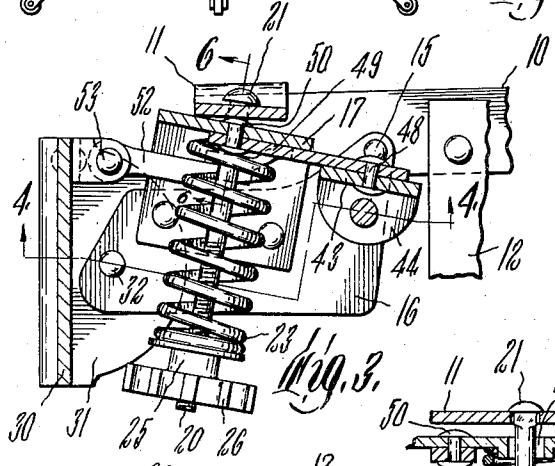


Fig. 3.

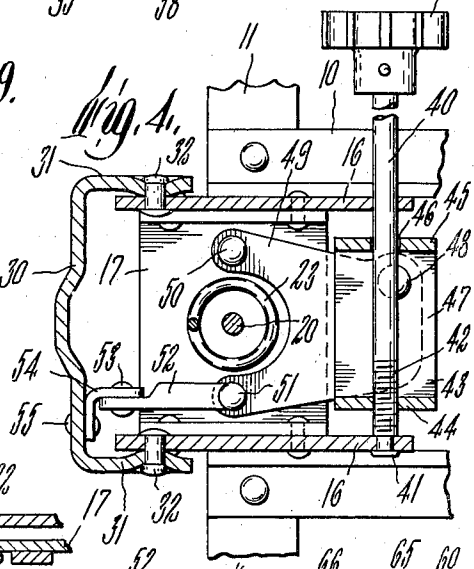


Fig. 4.

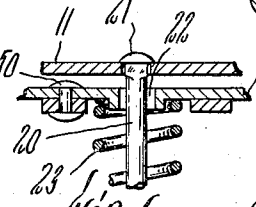


Fig. 6.

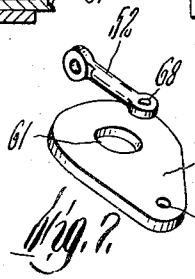


Fig. 7.

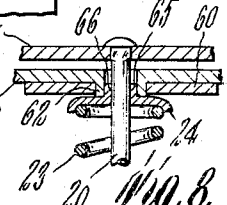


Fig. 8.

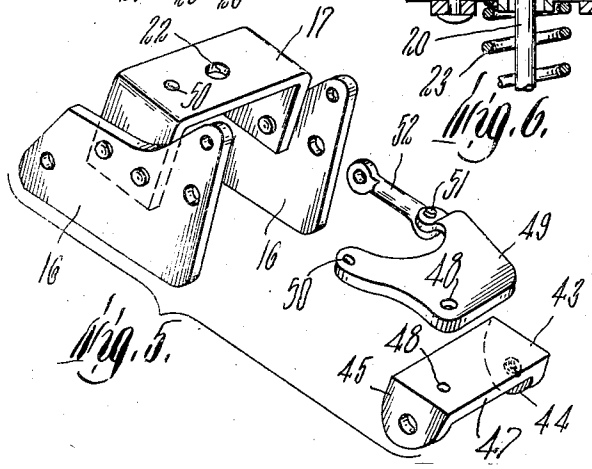


Fig. 5.

Inventor

Henry W. Sheldrick

by Wright Brown Quinby & May

Attys.

Patented Dec. 13, 1938 2,140,058

UNITED STATES PATENT OFFICE

2,140,058

CHAIR IRON

Henry W. Sheldrick, Gardner, Mass., assignor to Collier-Keyworth Company, Gardner, Mass., a corporation of Massachusetts

Application June 9, 1936, Serial No. 84,277

6 Claims. (Cl. 155—157)

This invention relates to chair irons and more particularly to irons of the type employed in chairs where the angularity of the chair back is adjustable, such chairs being commonly known as "posture" chairs.

An object of this invention is to provide means for adjusting the angularity of the chair back, readily accessible for actuation by the occupant of the chair so that he can adjust it while he is sitting on the chair, when he can easily determine for himself the direction and amount of adjustment to suit his individual requirements or desires.

A further object is to provide a simple and efficient adjusting means actuable at one side of the iron.

For a more complete understanding of this invention, reference may be had to the accompanying drawing in which

Figure 1 is a side elevation of a chair provided with an iron embodying this invention.

Figure 2 is a top plan of the iron.

Figure 3 is a detail section on line 3—3 of Figure 2.

Figures 4 and 6 are detail sections on lines 4—4 and 6—6, respectively, of Figure 3.

Figure 5 is an exploded perspective of certain parts of the iron.

Figure 7 is a view similar to a portion of Figure 5, but showing a modified construction.

Figure 8 is a view similar to Figure 6, but showing the modification of Figure 7.

Figure 9 is a detail perspective showing a slight modification.

Referring first to Figure 1, at 1 is indicated a chair base carrying a vertically adjustable threaded spindle 2 to the upper end of which is secured a chair iron member indicated generally at 3. This iron supports the chair seat 4. The chair back 5 is secured to a back member 6 which may be adjustably turned angularly so as to adjust the angular relation between the seat and the back. The mounting of this back member with reference to the spindle-carried member 3 is shown in greater detail in the other figures of the drawing. As shown best in Figure 2, the spindle-carried member comprises a pair of spaced angle members 10 bridged across at their ends by the chair seat supporting bars 11 and having a member 12 which is secured to the upper end of the spindle and which extends across between the members 10.

Pivoted between the members 10 rearwardly of the member 12, as at 15, is a support comprising a pair of side plates 16 bridged by an inverted channel-shaped member 17, the flanges of which are secured to the inner faces of the side plates 16. The central portion of the rear cross bar 11 is depressed and perforated for the rockable reception of a threaded rod 20 headed over at 21 above the rear member 11 and this threaded rod 20 passes through an opening 22 in the channel member 17. If desired the depressed portion of the rear bar 11 may be provided with an upstanding rib 14 upon which the head 21 of the rod 20 may have rocking contact, as shown in Figure 9. Surrounding this rod 20 is a coil spring 23, one end of which bears against the inner face of the member 17. The other end portion of the spring 23 bears against a washer against which engages a hub portion 25 of a hand wheel 26 threaded on the lower end of the rod 20. This spring acts to hold the plate member 17 normally in engagement with the rear cross bar 11 in the position shown in Figure 3, this cross bar 11 forming a limiting stop therefor, but the support may be rocked away from contact with the rear cross bar 11 against the pressure of the spring 23 by pressure exerted against the seat back by the occupant of the chair. This support has pivoted thereto a generally U-shaped back member 30, the side flanges 31 of which are pivotally connected to the rear ends of the plates 16, as by a pivot 32, on a horizontal axis. This back member 30 has secured thereto and vertically adjustable thereon a transverse back support 35 to the outer ends of which are secured the back posts 36. The member 35 may be secured in adjusted position as by the hand nut 37 in the well understood manner.

The back member 30 is arranged to be adjusted to determine the normal angular position of the back from which it may be swung backwardly by a pressure exerted thereon against the pressure of the spring 23, and according to this invention, the means for adjusting the angularity of the back member 30 with reference to its spring support is accessible for actuation by the occupant of the chair while he is seated. To this end, the support has journaled transversely thereof a shaft 40, this shaft as shown passing through the side members 16 and substantially parallel to the axis of the back member pivot 32, one end of the shaft being reduced in diameter where it passes through the corresponding plate 16 and being headed over at 41 at its end to fix the shaft in axial position while permitting it to be rotated. The shaft 40 is threaded as at 42 and on this threaded portion is engaged a threaded member 43. This member 43, as shown, comprises a chan-

nel-shaped member having threaded connection to the shaft 40 in one of its end flanges 44. The other end flange 45 is provided with an opening 46 through which the shaft 40 loosely passes. This flange 45 serves as a guide to insure proper engagement of the threaded flange 44 without the possibility of binding on the shaft 40. The intermediate plate portion 47 of this member 43 provides a portion to which is pivoted, as at 48, a rock member 49. This pivot is transverse to the pivotal axis of the back member 30 and the axis of the shaft 40. This rock member may be fulcrumed at 50 to the plate member 17 on one side of the threaded rod 20 and the spring 23. It extends part way around the spring 23 and the threaded rod 20, and to this extension, as at 51, is pivoted the forward end of a link 52. The rear end of this link is pivoted as at 53 to one arm of an angle member 54, which is secured as by a rivet 55 to the back member 30. Thus as the shaft 40 is turned, the member 43 is caused to travel longitudinally thereof, swinging the rock member 49 about its pivot and pulling or pushing on the link 52, thus to swing the back member 30 about its pivots 32, the angle member 54 being secured to this back member eccentric to these pivots 32.

The shaft 40 is extended at one side of the spindle-supported member of the iron and has secured to its outer end means such as a hand wheel 58 by which the shaft may be turned to adjust the normal angular position of the back support 30. This hand wheel 58 may extend out toward the side of the chair seat 4 sufficiently to be easily reached by the occupant of the chair while he is sitting thereon so that he can turn it to adjust the normal angularity of the seat back as he may desire.

In Figures 7 and 8 a modification is illustrated in which the rock member 49, instead of being pivoted eccentric to the rod 20, is formed as a plate 60 having a journal opening 61 therein. This journal opening 61 may be journaled on the outer face of a boss 62 (see Figure 8) integral with the member 17, and the spring seat 24 for the spring 23 may have an integral boss portion 65 projecting within the boss 62 and centrally apertured as at 66 to permit the threaded rod 20 to pass therethrough. This plate 60 is thus pivoted concentric with the spring 23 and the threaded rod 20. The plate 60 may be pivotally secured to the member 43, as through the pivot opening 67, and it may have the link 52 pivoted thereto as at 68, the rear end of the link 52 being pivotally secured to the back member 30 as in the construction previously described.

From the foregoing description of certain embodiments of this invention, it should be evident to those skilled in the art that various changes and modifications may be made without departing from the spirit or scope of this invention as defined by the appended claims.

I claim:

1. A chair iron comprising a support, a back member pivoted to said support on a substantially horizontal axis, and means for adjusting the angular relation between said member and support comprising a part pivoted to said support, a shaft journaled in said support substantially parallel to said axis, operative connections between said shaft and part causing turning of said shaft to rock said part, operative connections from said part to said back member causing rocking of said part to turn said member on said axis, and operating means secured to said shaft.

2. A chair iron comprising a support, a back member pivoted to said support about a horizontal axis, a shaft journaled in said support substantially parallel to said axis, a threaded member having threaded connection with said shaft, a part pivoted to said support about an axis transverse to said shaft and connected to said threaded member, a link connection between said part and said back member eccentric to its pivot to said support, and operating means fixed to said shaft spaced from said support.

3. A chair iron comprising a spindle-carried member, a support pivoted to said member about a substantially horizontal axis, a back member pivoted to said support substantially parallel to said support pivot, a stop limiting the angular motion of said support relative to said spindle-carried member in one direction, a stem projecting from said spindle-carried member through said support, a coil spring surrounding said stem for yieldingly holding said support against said stop, a threaded shaft journaled in said support and projecting laterally therefrom, a member threaded on said shaft, a rock member pivoted to said support and extending at least partly around said stem and pivotally carrying said threaded member, and a link connecting said rock member to said back member.

4. A chair iron comprising a spindle-carried member, a support pivoted to said member about a substantially horizontal axis, a back member pivoted to said support substantially parallel to said support pivot, a stop on said spindle-carried member limiting the angular motion of said support relative to said spindle-carried member in one direction, a stem projecting from said spindle-carried member through said support, a coil spring surrounding said stem for yieldingly holding said support against said stop, a threaded shaft journaled in said support and projecting laterally therefrom, a member threaded on said shaft, a rock member pivoted to said support at one side of said spring and extending partly therearound and carrying said threaded member, and a link connecting said rock member at said extended portion to said back member.

5. A chair iron comprising a spindle-carried member, a support pivoted to said member about a substantially horizontal axis, a back member pivoted to said support substantially parallel to said support pivot, a stop on said spindle-carried member limiting the angular motion of said support relative to said spindle-carried member in one direction, a stem projecting from said spindle-carried member through said support, a coil spring surrounding said stem for yieldingly holding said support against said stop, a threaded shaft journaled in said support and projecting laterally therefrom, a member threaded on said shaft, a rock member pivoted to said support coaxially with said stem and carrying said threaded member, and a link connecting said rock member to said back member.

6. A chair iron comprising a spindle-carried member, a support pivoted to said member about a substantially horizontal axis, a back member pivoted to said support substantially parallel to said support pivot, a stop on said spindle-carried member limiting the angular motion of said support relative to said spindle-carried member in one direction, a stem projecting from said spindle-carried member through said support, a coil spring surrounding said stem for yieldingly hold-

ing said support against said stop, a seat for said spring having a boss through which said stem passes, said support having an annular member surrounding said boss, means at the outer end of said stem for adjusting the tension of said spring, a rock member journaled on said annular member, a threaded shaft journaled transversely in said support, a member threaded on said shaft and pivotally carried by said rock member, a link connecting said rock member to said back member, and means on said shaft by which it may be turned.

HENRY W. SHELDRICK.