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ADJUSTABLE MECHANISM FOR POSTURE CHAIRS

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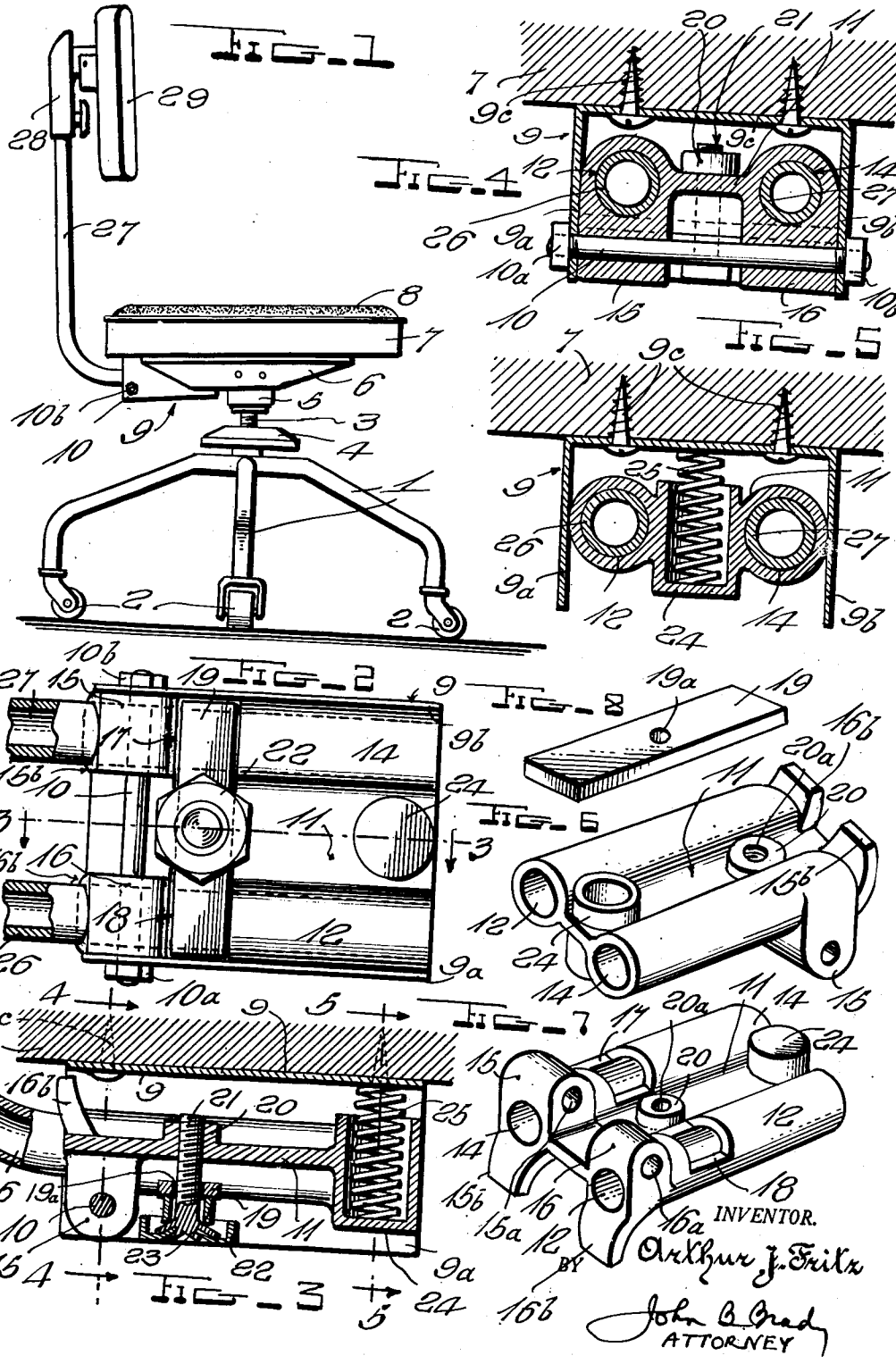

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ADJUSTABLE MECHANISM FOR POSTURE CHAIRS

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4 Claims. (Cl. 155—157)

1

My invention relates broadly to posture chairs and more particularly to an adjustment mechanism for use in posture chairs.

One of the objects of my invention is to provide an adjustable mechanism mounting beneath the seat of a posture chair by which the back rest of the chair may be adjusted to selected positions while the back rest is free to pivot to various positions with respect to the chair seat.

Another object of my invention is to provide a construction of spring housing mechanism for hardware adapted to be mounted beneath the chair seat for yieldably mounting the support for the back rest with respect to the seat.

Still another object of my invention is to provide a composite construction of hardware adapted to be mounted beneath a chair seat and serving both as a cradle for a compression spring adapted to yieldably support the chair seat and also as a selectively adjustable means for a bracket member operative to support a back rest in selected position with respect to the chair seat.

A further object of my invention is to provide a novel construction of clamp mounted beneath a chair seat for selectively positioning a back rest with respect to the chair seat.

Other and further objects of my invention will be understood from the specification hereinafter following by reference to the accompanying drawings in which:

Figure 1 is a side elevational view of a posture chair embodying the structure of my invention; Fig. 2 is a bottom plan view of the adjustable hardware which is mounted beneath the chair seat in accordance with my invention; Fig. 3 is a vertical sectional view through the hardware of Fig. 2 taken on line 3—3 thereof; Fig. 4 is a vertical transverse sectional view taken on line 4—4 of Fig. 3; Fig. 5 is a vertical transverse sectional view taken on line 5—5 of Fig. 3; Fig. 6 is a perspective view of the hardware forming part of my invention; Fig. 7 is a perspective view similar to the perspective view shown in Fig. 6 but illustrating the hardware in reversed position in order to explain the parts thereof associated with the clamping means of my invention; and Fig. 8 is a perspective view of the clamping plate which is associated with the hardware.

My invention is directed to a construction of posture chair particularly suitable as an office chair and which includes a novel construction of hardware mounted beneath the seat of the chair and which forms a cradle for a compression spring arranged for yieldably supporting the chair seat and which also includes a novel construction of clamp for adjustably mounting a back support in selected positions with respect to the chair seat for providing maximum comfort. The hardware of my invention is formed from a minimum number of parts which may be

2

manufactured and assembled on a mass production scale inexpensively for providing all of the adjustments essential to comfortable use of a posture chair.

Referring to the drawings in more detail the assembled posture chair is shown in Fig. 1 including a multiplicity of legs 1 terminating in casters 2. The legs 1 are connected with a central frame which is screw threaded for the passage of the adjusting screw 3 which may be locked in selected adjusting position by means of locking nut 4. The adjusting screw 3 is supported in the U shaped bracket 5 which is mounted by the angle members 6 secured to the bottom of the seat 7 of the posture chair. The seat 7 is suitably upholstered as indicated at 8.

Beneath the seat 7 and adjacent the rear peripheral edge thereof I provide a depending channel shaped member 9 provided with side flanges 9a and 9b extending parallel to each other and secured to the underside of the seat 7 by suitable means such as screws 9c The side flanges 9a and 9b serve as a mounting means for the transverse pivot bar 10 which is screw threaded at each end and secured in position by nuts 10a and 10b. The transverse pivot bar 10 serves as a mounting means for the housing 11 which is disposed within the depending channel shaped member 9. The housing 11 is free to move about transverse pivot bar 10 as a center.

The housing 11 is formed by a casting which includes a pair of longitudinally extending cylindrical passages 12 and 14 disposed on spaced parallel axes terminating at their ends in transversely disposed lugs 15 and 16 projecting in one direction and transversely disposed integrally connected stops 15b and 16b extending in the opposite direction, with respect to the axes of cylindrical passages 12 and 13. The transversely extending lugs 15 and 16 are apertured at 15a and 16a for receiving the transverse pivot bar 10 which extends therethrough and provides the pivot means about which housing 11 may rock or rotate within limits. The angular movement of housing 11 is controlled in one direction by the stops 15b and 16b and the abutment thereof with the interior flat surface of the channel shaped member 9 as shown more clearly in Fig. 3. The housing 11 is provided with transversely disposed semi-cylindrical slots 17 and 18 which extend through the cylindrical passages 12 and 14 as shown more clearly in Fig. 7. The semi-cylindrical slots 17 and 18 are transversely aligned for the passage of the transversely extending pressure bar 19.

The pressure bar 19 is provided with an aperture 19a therethrough which is alignable with the screw threaded recess 20a in the centrally disposed boss 20 which projects from the housing 11. The screw threaded recess 20a is adapted to receive the adjusting screw 21 which extends up-

wardly therethrough as shown more particularly in Fig. 3 and is provided with a manipulating knob 22 thereon which may be grasped by the fingers or by means of a tool for adjusting screw 21 through spacing cylindrical sleeve 23 and aperture 19a in pressure bar 19. The pressure bar 19 extends transversely across the longitudinal paths of the cylindrical passages 12 and 14 through the semi-cylindrical slots 17 and 18 and establishes tangential contact with the surfaces of the tubular frame members 26 and 27.

The tubular frame members 26 and 27 are suitably interconnected in a transverse direction and are adapted to move into and out of the cylindrical passages 12 and 14 to selected positions. The tubular frame members 26 and 27 serve as carriers for the adjustable back cradle 28 forming an adjustable support for the back rest 29 for the posture chair. The tubular frame members 26 and 27 may be moved telescopically into or out of cylindrical passages 12 and 14 for properly positioning the back rest 29 with respect to the rear peripheral edge of the seat 7.

The housing 11 is provided in a position adjacent the forward end thereof with a cylindrical pocket 24 extending on a vertical axis aligned with the central axis of housing 11 and extending both above and below the cylindrical passages 12 and 14. The cylindrical pocket 24 receives the compression coil spring 25 which bears against the interior end of the cylindrical pocket 24 and the central interior face of the channel shaped member 9. The compression coil spring 25 as thus mounted tends to continuously urge the housing 11 in a clockwise direction as viewed in Fig. 3. The force of the compression spring 25 resists the back pressure exerted by the occupant of the posture chair in leaning backward against the back rest 29. The occupant in leaning against the back rest 29 tends to shift housing 11 in a counter-clockwise direction against the force of compression coil spring 25. The maximum angle to which back rest 29 may be moved is limited by abutment of the top of the cylindrical pocket 24 with the central interior surface of channel shaped member 9. The maximum position to which back rest 29 may be thrust by the action by compression coil spring 25 is limited by abutment of stops 15b and 16b with the inside surface of channel shaped member 9. Adjusting screw 21 when rotated in a counter-clockwise direction releases pressure bar 19 from pressure contact with the surfaces of tubular frame members 26 and 27 permitting the tubular frame members to be adjusted in position axially of the cylindrical passages 12 and 14 for shifting the back rest 29 to a selected position with respect to the rear peripheral edge of seat 7. When the proper position has been selected adjusting screw 21 is revolved in a clockwise direction thereby applying pressure bar 19 against tubular frame members 26 and 27 and introducing the necessary clamping pressure for fixing the back rest 29 in desired position with respect to the seat of the posture chair.

I have found the adjustable mechanism which mounts beneath the chair seat as herein described highly practical in construction and economical in manufacture and assembly on a mass production scale and although I have described my invention in one of its preferred embodiments I realize that modifications may be made and I desire that it be understood that no limitations upon my invention are intended other than may be imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. A device for connecting a chair back with a chair seat comprising a relatively flat support, a channel shaped member having a flat central portion and a pair of depending side portions, said flat central portion being attached to the under surface of said relatively flat support, a housing extending longitudinally through said channel shaped member within the protective confines of said depending side portions, means disposed adjacent one end of said channel shaped member and extending through said side portions for journalling said housing, said housing including a pair of spaced tubular members extending substantially the length of the housing with longitudinally extending bores therein, frame members slidably adjustable through said bores, the walls of said tubular members having transverse slots therein adjacent said journalling means, an adjustable screw extending through said housing intermediate said tubular members, a pressure bar carried by said screw and operative through the transverse slots in said housing for selectively engaging said frame members in a selectively adjusted position, a coil spring aligned with the central longitudinal axis of said housing and extending between the flat central portion of said channel member and one end of said housing and abutment stops carried by the other end of said housing and engageable with the flat central portion of the other end of said channel shaped member for limiting the angular movement of said housing about said journalling means.

2. A device for connecting a chair back with a chair seat as set forth in claim 1 wherein said adjustable screw engages said housing in a position intermediate the journal of said housing in the depending side portions of said channel shaped member and the position at which said coil spring engages the flat central portion of said channel shaped member.

3. A device for connecting a chair back with a chair seat as set forth in claim 1 wherein said abutment stops carried by said housing are integral with the upper surfaces of the terminating ends of said tubular members and abut with the end of the flat central portion of said channel shaped member in positions adjacent the inner faces of said depending side portions of said channel shaped member.

4. A device for connecting a chair back with a chair seat as set forth in claim 1 in which said tubular members are cylindrical and the frame members that are adjustable therein are of corresponding circular section, said pressure bar being substantially flat and extending substantially within the limits of the thickness of the walls of the tubular members and establishing tangential contact with the surfaces of said frame members in a position intermediate the journal at one end of said housing and the coil spring at the other end thereof.

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