

March 25, 1969

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3,434,756

CHAIR WITH ADJUSTABLE BACK AND ARM RESTS

Filed April 17, 1967

Sheet 1 of 2

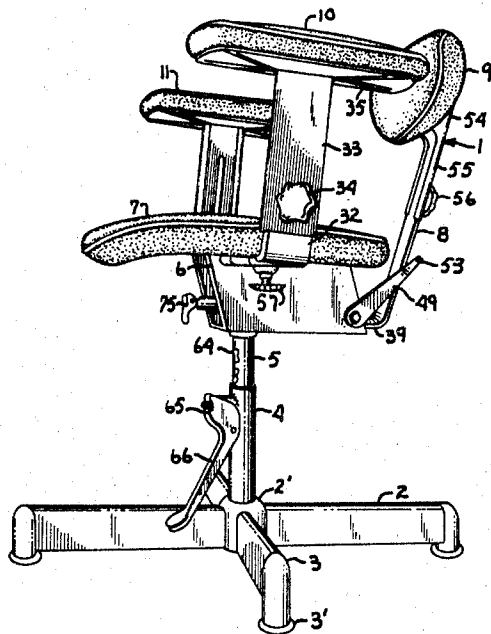


Fig. 1.

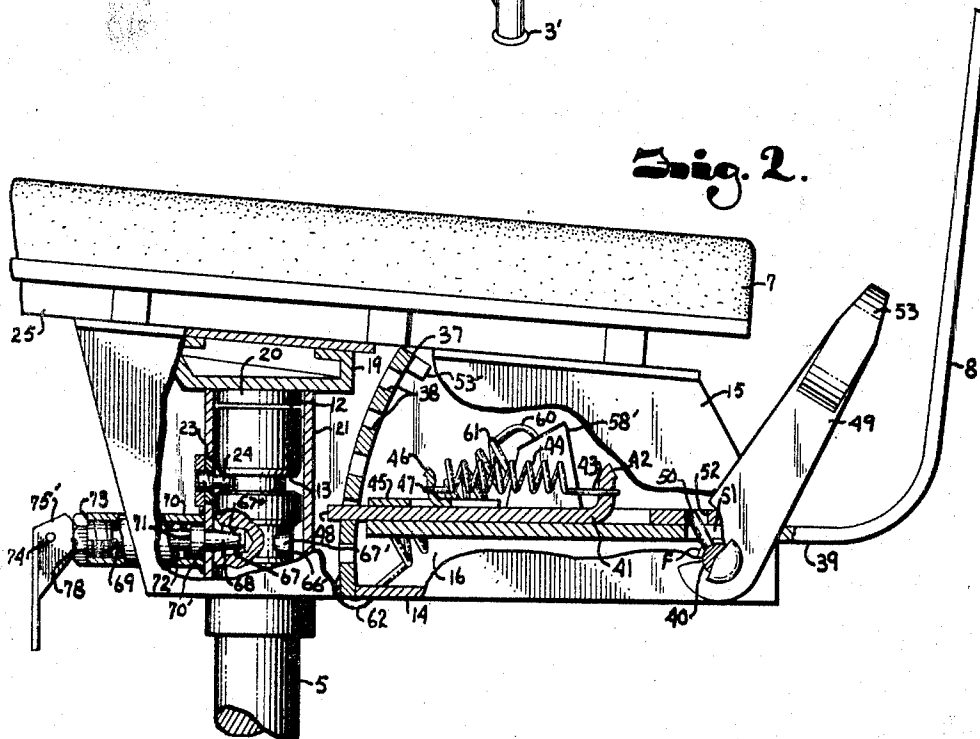


Fig. 2.

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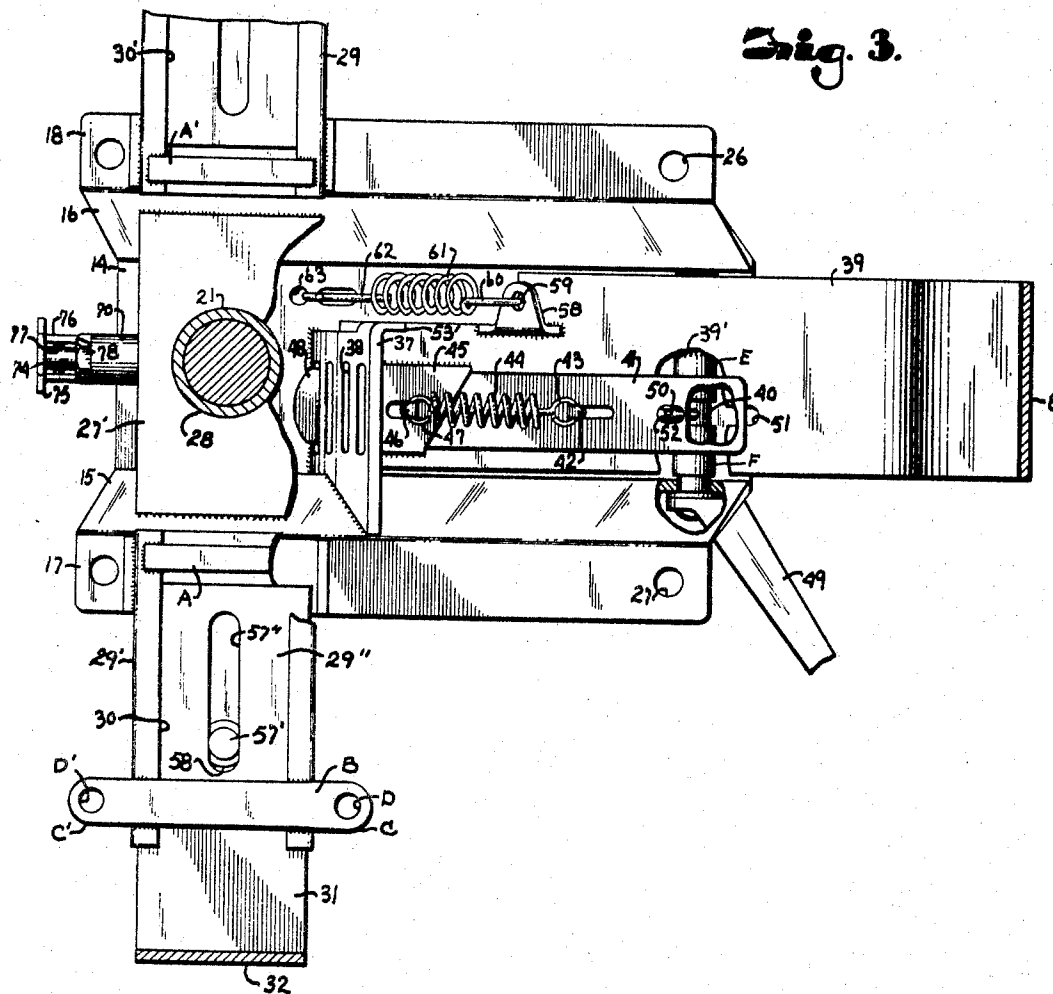
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3,434,756 CHAIR WITH ADJUSTABLE BACK AND ARM RESTS

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14 Claims

ABSTRACT OF THE DISCLOSURE

This invention discloses a chair particularly for use in an office and similar places wherein the chair seat frame is nontiltable on the pedestal. The back is adjustable and includes means to urge the cushion on the upper portion of the back against the body of the user, and may be adjusted to accommodate persons of different size, so as to exert pressure at the proper place on the back. It also contemplates a seat frame mounted on a pedestal having means to prevent accidental displacement of the frame from the pedestal, and means to lock the chair seat and frame from rotating with respect to the pedestal.

Applicant has discovered that with chairs of this type, and particularly for stenographers' use, and non-tilting type chairs, the back rest should be small and padded and contoured to fit the small of the back, and be narrow enough not to interfere with retraction of the elbows. It should be positioned vertically so as to not obstruct movement of the shoulder blades nor press into the pelvis of the user. Horizontal adjustment toward and away from the operator's back and a resilient mounting so as to maintain the pad in tension toward the user's back is helpful. Applicant has also found that adjustment of the arm rests will aid in use by the operator, so that if the arms are to be held for any length of time in virtually immobile position, the rests will be available, and this invention contemplates adjustment of the arm rests to fit the user.

The principal objects of the present invention are to provide a chair having a base, a pedestal, a seat frame mounted on the pedestal, and means for preventing accidental removal thereof when in use; to provide a seat for the seat frame; to provide a bracket in the seat frame having a slight curvature upwardly and rearwardly from the pedestal; to provide a sleeve member horizontally with the frame and having a keeper member slidable therein, with one end thereof engageable with openings in the bracket, the bottom portion of the sleeve being the horizontal portion of the back rest; to provide the bottom portion of the sleeve member with an extension which forms the vertical arm of the back rest; to provide a cushioned back member having a sleeved arm engaging over the vertical arm of the back member, and whereby the padded or cushioned member and sleeve is slidably adjustable on said back arm; to provide spring means on the keeper member and sleeve to urge the keeper member in engagement with the openings in the bracket; and to provide resilient means for urging the cushioned portion of the back to the back of the user.

Other objects of the present invention are to provide a frame for the seat with a platform having a bearing member depending therefrom and surrounded by a depending sleeve which engages over the top of the pedestal so that the bearing member rests on the top thereof; to provide the bottom of the sleeve with a collar upon which the bottom of the seat frame rests; to provide an annular groove spaced from the top of the pedestal and a key member for engagement therein to prevent displacement

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of the seat and frame from the pedestal; to provide the pedestal with a socket member on one side thereof spaced below the annular groove; to provide a locking means carried by the seat frame, whereby a plunger is provided for engaging in a socket in the pedestal to lock the seat and seat frame from revolving on the pedestal; to provide means for adjusting the pedestal with respect to the base; and to provide a device of this character simple and economical to manufacture.

In accomplishing these and other objects of the invention as hereinafter described, I have provided improved structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

FIG. 1 is a perspective view of a chair embodying the features of my invention.

FIG. 2 is an enlarged cross sectional view with parts broken away to better illustrate the invention.

FIG. 3 is a top plan, partly cross-sectional, view of the seat frame, the resilient means for the back rest and keeper member for adjustment of the back rest.

Referring more in detail to the drawing:

1 designates a chair embodying the features of my invention, consisting of a base 2 having a hub portion 2' and a plurality of legs 3 having feet 3' for engaging the floor or the like. Mounted in the hub 2' is a hollow standard 4, and slidable therein is a pedestal 5. Mounted on the top of the pedestal is a seat frame 6, a seat 7, a back arm 8, a cushioned back rest 9, and arm rests 10 and 11. Spaced from the top 12 of the pedestal is an annular groove 13 for a purpose later described.

The seat frame 6 consists of a bottom member 14, upwardly and outwardly extending side walls 15 and 16, and horizontally extending wings or arms 17 and 18. Secured to the underneath side of the side walls is a platform 19 having a bearing member 20 extending downwardly at substantially the center thereof and adapted to engage the top 12 of the pedestal and bear thereon. Secured to the platform 19 and surrounding the bearing member 20 and the top of the pedestal is a depending sleeve 21, the lower end of which extends through the bottom 14 of the frame (FIG. 2). One side of the sleeve 21 is provided with an opening 23 and screw-threadedly engaged therein is a pin 24 having its inner end engaging in the groove 13 to prevent the frame from being removed from the pedestal until the pin is removed.

The seat 7 has a bottom member 25 and is secured to the laterally extending arms 17 and 18 of the frame by bolts or the like (not shown) through the openings 26 and 27 in each end, respectively, of the arms 17 and 18. Welded or otherwise suitably secured to the side walls 14 and 15 of the frame 6 is a plate member 27' having an opening 28 through which the sleeve 21 and pedestal 5 extend. Elongated sleeve members 29 and 29' are welded or otherwise suitably secured to the tops of the laterally extending arm portions 17 and 18 of the frame 6. The sleeves are formed by turning a portion of the sides of the bottom portion 29'' laterally and inwardly toward each other forming channelways 30 and 30' for receiving the horizontal portions 31 of the arm rests 10 and 11. Plate members A and A' are welded to the inturned portions of the sleeves 29 and 29' near their inner ends for rigidity of the sleeves. Arms B are welded to the inturned portions of the sleeves near their outer ends and having ends C and C' provided with openings D and D' for receiving fastening members (not shown) for fastening the seat bottom thereto to aid in supporting the seat on the frame 6.

The arm rest standards 32 extend upwardly on each side of the seat 7, and the arm rests 10 and 11 have depending sleeve members 33 extending over the vertical arms 32 and are adjustable thereon by hand screws 34. The arm rests 10 and 11 are cushioned and have a frame

portion 35 secured to the vertical sleeve members 33, as illustrated in FIG. 1.

Rigidly secured to the bottom of the seat frame by welding or other suitable means is a bracket member 37 having spaced openings 38 longitudinally thereof. The bracket is curved upwardly and rearwardly with respect to the pedestal and also with the frame. The horizontal portion 39 of the back member 8 is secured by welding as indicated at 39' to spaced collars E and F (FIG. 3) rotatable on a shaft 40 pivotally mounted in the side walls 15 and 16 of the seat frame. A keeper member 41 is slidably mounted on the horizontal arm portion 39 of the back 8 and has an upstruck portion 42 providing a hook for one end 43 of a coil spring 44. A U-shaped plate member 45 is welded or otherwise suitably secured on top of the forward end of the horizontal portion 39 of the back member 8 to form a sleeve for the slidable keeper member 41. The plate 45 has an upstruck portion 46 over which the other end 47 of the coil spring 44 engages to urge the end 48 of the keeper member into a selected opening 38 of the bracket member 37.

A lever arm 49 is rigidly mounted on the shaft 40, and rigidly mounted thereon is a pin 50 extending laterally therefrom and adapted to extend through a slot 51 in the horizontal portion 39 of the back arm 8 and through an opening or slot 52 of the keeper member 41 whereby movement of the handle portion 53 of the lever will cause the pin 50 to move the keeper member either forwardly or backwardly. Backward movement on the lever arm will remove the keeper member from the bracket 37 and the back rest arm may be adjusted to suit the person using the chair. Forward movement of the lever arm 49 will, of course, move the keeper member forwardly and along with the spring 44 retain the keeper in engagement with the bracket member. A lug member 53' is provided on the upper end of the bracket 37 to act as a stop for the end of the keeper member and limit backward movement of the back member 8.

The cushioned back member has a frame portion 54 and a downwardly extending sleeve portion 55 engaging over the vertical portion of the back arm 8 and a hand screw 56 to retain the cushion member in adjusted position on the back rest. The bracket arms 31 of the arm rests 10 and 11 are adjustable toward and away from each other to adjust the arm rests toward and away from each other by hand screws 57 (FIG. 1) on bolts 57' extending through slots 57''. A tapered hardened steel wedge 58 is provided on each of the bolts and engages in the slots 57'' to effect the retention of the arm rests in adjusted position.

Welded or otherwise suitably secured to the horizontal portion 39 of the back member is a bracket 58' extending upwardly from the upper face of the horizontal portion provided with an opening 59 for receiving the end 60 of a coil spring 61. The other end 62 of the coil spring engages in an opening 63 in the bottom 14 of the seat frame so that the back 8 with the cushion 9 thereon will normally be urged toward the back of the user of the chair.

The pedestal 5 has a plurality of spaced openings 64 along one side thereof and in order to adjust the pedestal in the hollow standard 4 there is provided a locking means as indicated at 65, including a lever 66 whereby the pedestal may be lowered or raised to suit the user.

It is the object of the present invention to have the seat 7 and frame 6 selectively non-rotatable on the pedestal in normal use. The apparatus for accomplishing this purpose includes an annular recess or groove 66' spaced below the annular groove 13 in the pedestal. The groove 66' is provided with spaced sockets 67 and 67'. The sockets are tapered inwardly as indicated at 67'' for receiving the tapered end 68 of a locking pin 69 slidably mounted in a sleeve 70 which is rigidly secured to the sleeve 21 of the seat frame by welding or other suitable means, as indicated at 70 (FIG. 2). The sleeve 21 has an

opening 70' in its side and one end of the sleeve 70 surrounds said opening. The pin includes a collar 71 and a coil spring 72 engages around the pin with one end against the collar 71 and its other end against a nut 73 on the other end of the plunger 69 which engages against the outer end of the sleeve 70. Pivotally mounted on the outer end of the plunger pin 69 which extends through the nut 73 by a pin 74 is a lever 75 of channel shape having sides 76 and having aligned openings 77 through which the pin 74 extends. The depending sides 76 have cam surfaces as indicated at 78 which engage against the side face of the nut 73, whereupon manipulation of the lever 75 withdraws the plunger from the socket 67 in the pedestal and the seat and frame then rotate on the pedestal. The cam surface of the lever is such that when it is extended outwardly in alignment with the sleeve of the plunger, the straight sides 75' hold the pin in unlocked position so that it is necessary when the user desires the seat to be non-rotating, that he release the lever to allow the pin to again enter the socket 67 in the pedestal. The spaced tapered sockets 67 and 67' are provided at a point on the pedestal so that when the seat is locked in one of the openings it will be in substantial parallel alignment with a leg and when in the other socket the seat will be in alignment between two of the legs.

It will be obvious from the foregoing that I have provided an improved chair, whereby adjustment thereof is simple, and the back is adjustable by a lever in easy reach of the user at the side of the frame and to the rear, to adjust the pressure of the cushion at the back of the user, and also whereby the seat may be either rotatable or non-rotatable on the pedestal and the arm rests may be adjustably vertically and toward and away from each other.

It is to be understood that while I have illustrated and described a certain form of my invention, it is not to be limited to the specific form or arrangement of parts herein described and shown.

What I claim and desire to secure by Letters Patent is:

1. The combination with a chair having a pedestal mounted on a base, a seat and back member, comprising

- (a) a frame for said seat,
- (b) means mounting said frame on said pedestal,
- (c) said back member having a horizontal portion engaged in said frame and a portion extending vertically thereof,
- (d) a bracket member having a vertically extending portion provided with a plurality of spaced openings therein mounted in said frame forwardly of said horizontal portion of the back member.
- (e) a keeper member slidably mounted on said horizontal portion of the back member having its forward end normally engaged in an opening of said bracket, and
- (f) means on said frame cooperating with said keeper member to disengage said member from an opening in said bracket and to engage same in another opening to adjust said back member to the user.

2. The combination of claim 1, wherein the first named means includes a sleeve depending from said seat frame engaging over the upper end of said pedestal and having a bearing surface facing and bearing on the upper end of said pedestal.

3. The combination of claim 1, including means carried by said seat frame to retain said keeper member slidable on said horizontal portion of the back member.

4. The combination of claim 2, including sockets spaced annularly on said pedestal and means carried by said sleeve on said seat frame cooperating with a selected socket on the pedestal to hold said seat in non-rotative position with respect to said base.

5. The combination of claim 2, including a plurality of legs on said base, sockets spaced annularly on said pedestal spaced above the lower end of said sleeve, said sleeve having an opening in a side thereof, a second sleeve rigidly mounted to said first sleeve around said openings

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and extending outwardly therefrom in longitudinal alignment with said seat frame and rotatable therewith, and means carried by said sleeve including a pin slidable therein having an end engageable in a selected opening in said pedestal whereby said seat may be locked in position with said seat in longitudinal alignment with one of said legs or in another position with the seat in longitudinal alignment between a pair of legs.

6. The combination with a chair having a pedestal mounted on a base, a seat and back member, comprising

- (a) a frame for said seat,
- (b) means mounting said frame on said pedestal,
- (c) said back member having a horizontal portion engaged in said frame and a portion extending vertically thereof,

(d) a bracket member having a plurality of spaced openings therein mounted in said frame forwardly of said horizontal portion of the back member,

(e) a keeper member slidably mounted on said horizontal portion of the back member having its forward end normally engaged in an opening of said bracket, and

(f) means on said frame cooperating with said keeper member to disengage said member from an opening in said bracket and to engage same in another opening to adjust said back member to the user, said first named means including a sleeve depending from said seat frame engaging over the upper end of said pedestal and having a bearing surface facing and bearing on the upper end of said pedestal, and said pedestal having an annular groove spaced from the upper end of said pedestal and within said sleeve on said seat and a pin carried by the wall of said sleeve having an end engaging in said annular groove.

7. The combination of claim 6, including means carried by said sleeve on said seat frame cooperating with a socket on said pedestal to prevent rotation of said seat and frame on said pedestal.

8. The combination of claim 7, including arm rests carried by said seat frame and means for adjusting said arm rests transversely of and vertically with respect to said seat.

9. The combination of claim 7, including a cushion member and means for adjusting said cushion member vertically on said back member.

10. The combination with a chair having a pedestal mounted on a base, a seat and back member, comprising

- (a) a frame for said seat, said frame having a bottom, side walls and horizontal arm portions for said seat,

(b) means mounting said frame on said pedestal,

(c) said back member having a horizontal portion

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engaged in said frame and a portion extending vertically thereof,

(d) a bracket member having a vertically extending portion provided with a plurality of spaced openings therein mounted in said frame forwardly of said horizontal portion of the back member,

(e) a keeper member slidably mounted on said horizontal portion of the back member having its forward end normally engaged in an opening of said bracket, and

(f) means on said frame cooperating with said keeper member to disengage said member from an opening in said bracket and to engage same in another opening to adjust said back member to the user.

11. The combination of claim 10, wherein said last named means includes a shaft transversely between the side walls of said seat frame near the rear portion thereof, a lever arm rigidly mounted on said one end of said shaft outside said seat frame, said horizontal portion of said back member having a slot therethrough, a pin on said shaft, said keeper member having an opening therein aligning with the slot in said horizontal member whereby operation of said lever will cause said keeper member to slide on said horizontal portion of said chair.

12. The combination of claim 11, including means to normally urge said keeper member toward said bracket.

13. The combination of claim 11, including resilient means to normally urge said cushion member on said back member in contact with the back of the user.

14. The combination of claim 12, wherein said means includes a bracket on the upper portion of said horizontal portion of said back member, the bottom of said seat frame having an opening forwardly of said horizontal portion and a spring member having one end engaging said last named bracket and the other end in said opening.

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