

Jan. 5, 1971

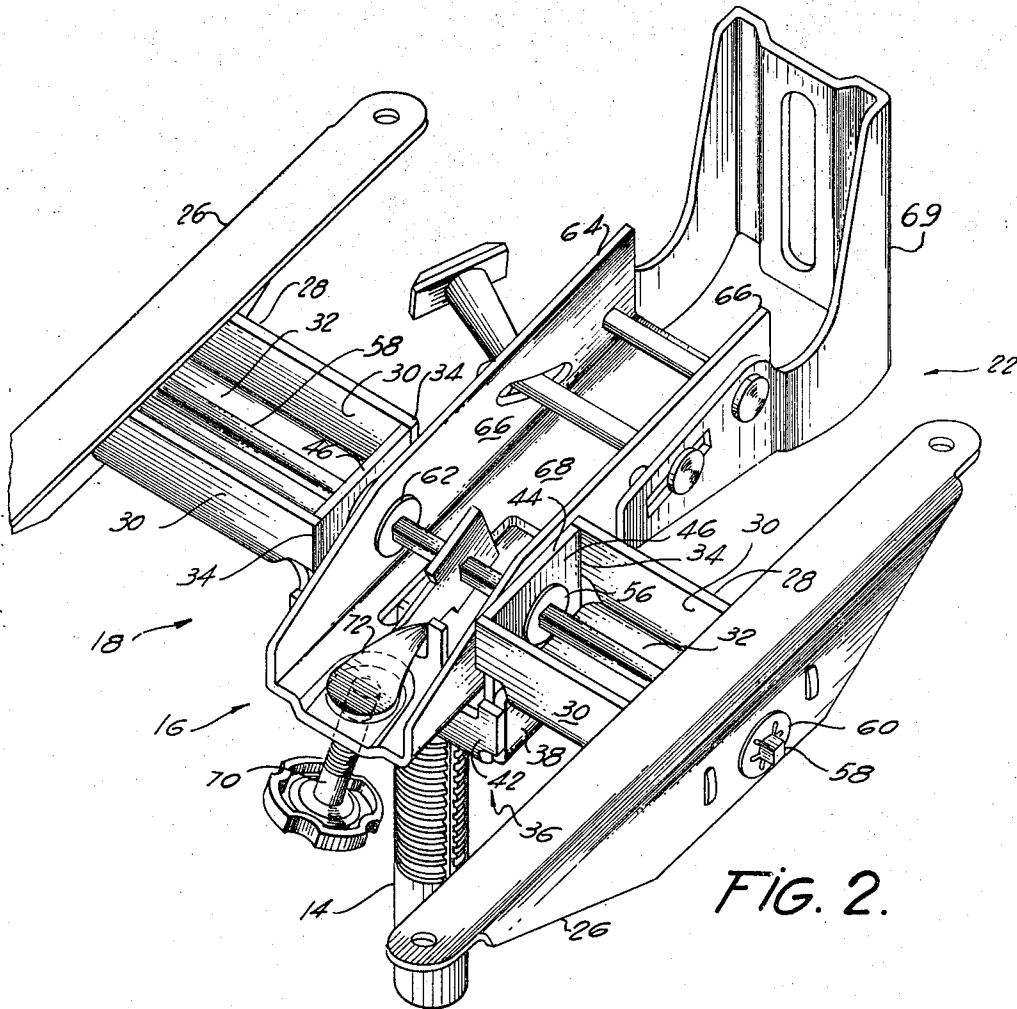
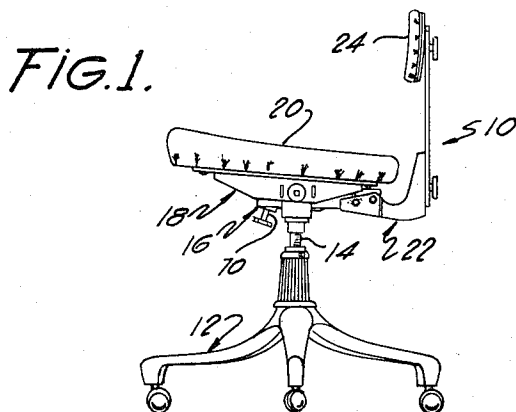
P. J. WILLIAMS

3,552,796

TORSION BAR CHAIR CONTROL

Filed March 24, 1969

2 Sheets-Sheet 1



INVENTOR
Philip J. Williams.

By Norton Lesser
ATTORNEY

Jan. 5, 1971

P. J. WILLIAMS

3,552,796

TORSION BAR CHAIR CONTROL

Filed March 24, 1969

2 Sheets-Sheet 2

FIG. 5

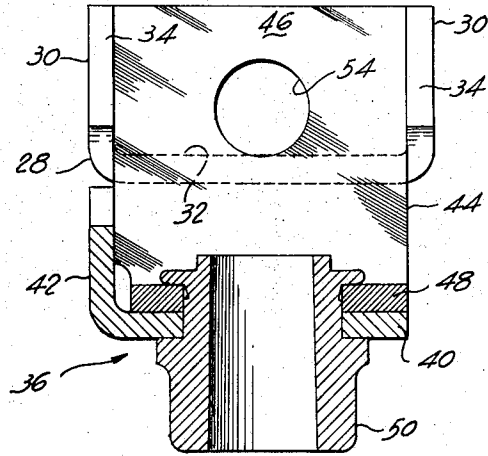


FIG. 3

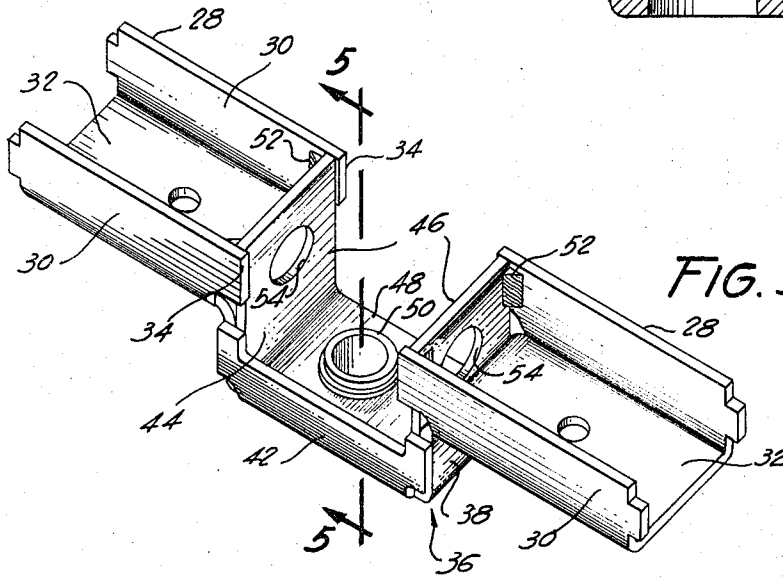
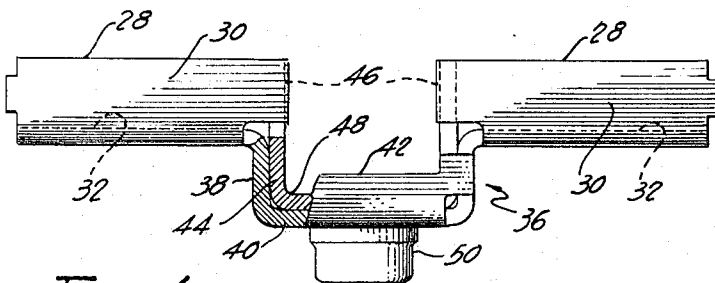


FIG. 4.

INVENTOR
Philip J. Williams

By *Morton Lesser*
ATTORNEY

1

3,552,796

TORSION BAR CHAIR CONTROL

Philip J. Williams, Bridgeport, Conn., assignor to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia

Filed Mar. 24, 1969, Ser. No. 809,600

Int. Cl. A47c 3/00

U.S. Cl. 297—304

6 Claims

ABSTRACT OF THE DISCLOSURE

The following specification describes a seat support for a torsion bar chain control in which the seat support includes a pair of U-shaped channel sections each having one end fixed to a respective bar end and interconnected by an integrally formed U-shaped body. The body nests a U-shaped bracket which rotatably supports the bar and renders the structure rigid.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates in general to torsion bar chair controls and more particularly to an improved arrangement for economically and stably supporting a torsion bar in a chair control.

Description of the prior art

In torsion bar chair controls of the type, for example, shown in U.S. Pat. No. 3,250,567, issued May 10, 1966 to Parrott, a torsion bar is fixed at its ends to a seat support and connected through a torque lever intermediate the bar ends to a back support. The back support is rotatably supported on the torsion bar intermediate the bar ends, and a pair of upstanding flanges formed from a horizontal wall of the seat support hold bearings for rotatably supporting the bar intermediate the bar ends. The area of the seat support in which the flanges are formed constitute an area of weakness permitting either distortion or fracture of the seat support or flanges.

SUMMARY OF THE INVENTION

The present invention avoids the problems of distortion or fracture by the simple provision of a U-shaped bracket for carrying the bearings for supporting the torsion bar with the bracket in turn nested and fixed in a supporting wall structure formed on the seat support to provide a stable rigid assembly.

It is therefore an object of the present invention to provide an improved and stable rigid seat support for rotatably supporting a torsion bar.

Other objects and features of the present invention will become apparent on examination of the following specification, claims and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an illustration of a typical chair having a chair control utilizing the principles of the present invention;

FIG. 2 is an isometric view illustrating a chair control utilizing the principles of the present invention;

FIG. 3 is an isometric view illustrating the seat support shown in FIG. 2;

FIG. 4 is a front elevational view of the chair control shown in FIG. 3; and

FIG. 5 is a sectional view taken through the line 5—5 in FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 a chair is indicated by the reference character 10. The chair 10 includes a pedestal 12 carrying a con-

2

ventional threaded post 14, which in turn carries a chair control 16 at its upper end. The chair control 16 includes a seat support 18 for carrying a seat 20 and a back support 22 for carrying a back 24.

The seat support 18 comprises a pair of spaced L-shaped spider arms 26 to which the seat 20 is conventionally fixed and each L-shaped arm has the end of a respective U-shaped channel section 28 staked and welded to the vertical leg of each arm 26. Each channel section 28 extends towards the axis of post 14 and each includes vertical legs 30 and a back leg 32. The vertical legs 30 are terminated at a position on respective sides of the vertical plane extending through the post axis to leave a lip 34 extending a short distance toward the post axis. The back legs 32 are formed vertically downwardly and then horizontally in a plane spaced from leg 32 to form a U-shaped body 36 integral with the channel sections 28.

The body 36 has vertical side walls or legs 38, a back horizontal wall 40 and an upwardly extending lip 42 formed at the front end of wall 40 and extending across the side walls 38. A U-shaped bracket 44 including side walls or legs 46 and a back wall 48 is nested between legs 38. The back walls 40 and 48 are in engagement and the side legs 46 butt the front wall 42 and the side legs 38 of the body 36. A post receiving member 50 is staked in aligned apertures in back walls 40 and 48 for holding the body and bracket together and receiving the upper end of post 18.

Legs 46 extend between the lips 34 to the level of legs 30. The bracket 44 is welded to the legs 30 and to the body 36 as indicated at 52 and a pair of aligned apertures 54 are provided in legs 46. Apertures 54 each receives a bearing 56 for rotatably supporting a torsion bar 58 intermediate the bar ends. The torsion bar 58 adjacent its respective ends is nonrotatably or fixedly engaged with the vertical legs of the spider arms 26 and a lock washer 60 is fixed to the respective bar ends to prevent longitudinal bar movement.

The torsion bar in turn carries a pair of spaced bearing elements such as 62 intermediate the two legs 46 of bracket 44, which in turn rotatably carry the back support structure 22 on the torsion bar. The back support structure 22 comprises a U-shaped channel member 64 having side walls or vertical legs 66 and a back wall 68. At the rear end of the channel member 64 a suitable bracket and apparatus 69 is provided for supporting the back 24. A hand wheel stud 70 is threaded through the wall 68 adjacent the front end of the wall. The end of the stud 70 engages against a torque lever 72 which has one end in nonrotatable engagement with torsion bar 58 intermediate legs 66 of member 64. Stud 70 is adjustably threaded in channel member 64 to control the pretensioning of the bar and the normal angular position of channel member 64.

An occupant in the chair 10 on leaning backwards causes the back 24, support 22, stud 70 and lever 72 to pivot backwards or clockwise as seen in the drawings about the axis of bar 58. This movement twists the torsion bar 58 between the center and ends of the bar. Since the bar is held at its ends in the seat support 18, a force is also applied tending to twist the channel sections 28 about the bar. This force is now resisted, however, by the bracket 44 supported by the lips 34 and body 36 to form a rigid stable structure which also resists twisting and leaning movements of the chair occupant.

What is claimed is:

1. A seat support for use with a torsion bar chair control of the type including a torsion bar rotatably carrying a back support intermediate the ends thereof with said back support nonrotatably connected to said bar intermediate the bar ends, said seat support comprising a

3

pair of U-shaped channel sections each adapted to have a respective end fixed to a respective bar end and extending toward the opposite bar end, A U-shaped body integrally formed with said sections intermediate said sections whereby pivoting movement of said back support about the axis of said bar tensions said bar, said body having a back wall spaced below the back wall of each channel section, a U-shaped bracket nestingly received by said U-shaped body, means securing said bracket to said body for holding said bracket and body back walls in adjacent positions with the side legs of said U-shaped bracket adjacent the side legs of said body and extending above the side legs of said body, and means carried by the side legs of said bracket for rotatably supporting said torsion bar.

2. In the seat support claimed in claim 1, a lip on each verticle leg of said U-shaped channel section engaging an edge of a respective bracket side leg for supporting the respective leg.

3. In the seat support claimed in claim 1, a vertical extending wall formed along one edge of said body back wall and engaging one edge of the side legs of said bracket.

4. The seat support claimed in claim 1 in which said securing means comprises an annular member staked to the back walls of said body and bracket and adapted to receive one end of a chair post.

5. A seat support for use with a torsion bar chair control of the type including a torsion bar rotatably carrying a back support intermediate the ends thereof with said back support nonrotatably connected to said bar intermediate the bar ends to enable said bar to be tensioned in response to pivoting movement of said back support about the axis of said bar while the ends of said bar are held nonrotatably, said seat support comprising a pair of U-shaped channel sections each adapted to have a respective end nonrotatably connected to a respective bar end and extending toward the opposite bar end, a U-shaped body integrally formed with said sections intermediate said sections with said body having a back wall spaced below the back wall of each channel section, a U-shaped bracket nestingly re-

4

ceived by said U-shaped body, a post receiving member staked to the back walls of said body and bracket for holding said bracket and body back walls in adjacent positions with the side legs of said U-shaped bracket adjacent the side legs of said body and extending above the side legs of said body, and means carried by the side legs of said bracket for rotatably supporting said torsion bar.

6. A torsion bar chair control including a pair of parallel spaced spider arms for supporting a seat, a torsion bar nonrotatably engaged adjacent the ends of said bar with said arms, back support member for carrying a back, means rotatably supporting said back support member on said bar, a pair of U-shaped channel sections each having one end fixed to a respective arm and extending from the respective arm toward the other arm, a U-shaped body integrally formed with said sections intermediate said sections with said body having a back wall spaced below the back wall of each channel section, a U-shaped bracket nestingly received by said U-shaped body, a post receiving member staked to the back walls of said body and bracket for holding said bracket and body back walls in adjacent positions with the side legs of said U-shaped bracket adjacent the side legs of said body and extending above the side legs of said body, means carried by the side legs of said bracket for rotatably supporting said torsion bar intermediate the bar ends, and means interconnecting said back support member and torsion bar for tensioning said bar in response to pivoting movement of said back support.

References Cited

UNITED STATES PATENTS

3,224,807	12/1965	Welch et al.	397—304
3,250,567	5/1966	Parrot	297—304

BOBBY R. GAY, Primary Examiner

J. C. MITCHELL, Assistant Examiner

U.S. Cl. X.R.

248—273