Aug. 14, 1956 W. H. McKINLEY 2,758,635

MOUNTING FOR VERTICALLY ADJUSTABLE SWIVEL CHAIR POST

Filed Jan. 3, 1955

Fig. 1.

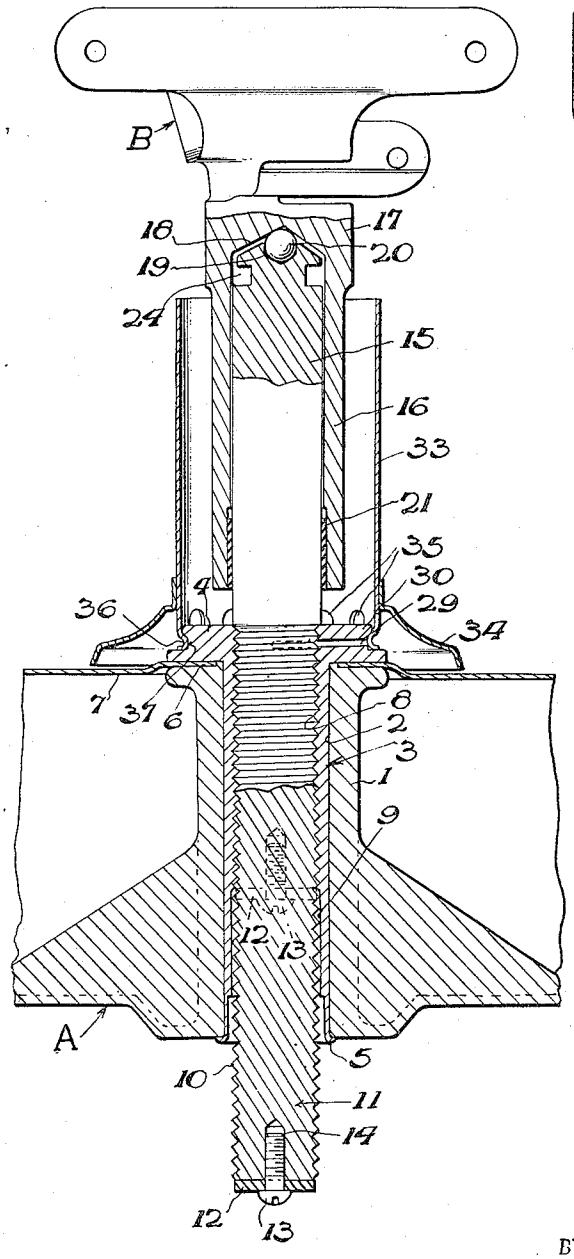


Fig. 2.

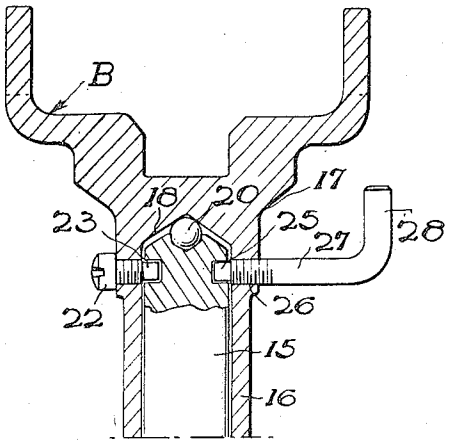


Fig. 4.

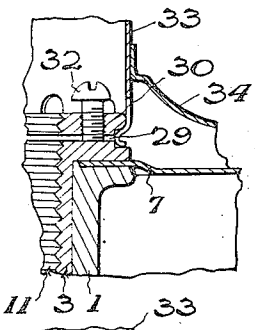
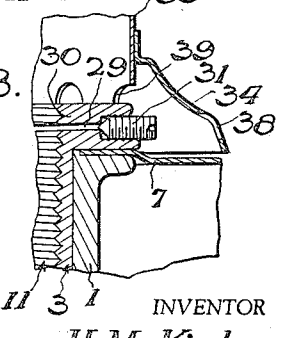


Fig. 3.



INVENTOR

William H. McKinley.

BY

ATTORNEY

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MOUNTING FOR VERTICALLY ADJUSTABLE SWIVEL CHAIR POST

William H. McKinley, Youngstown, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio, a corporation of Ohio

Application January 3, 1955, Serial No. 479,439

4 Claims. (Cl. 155—93)

This invention relates to chairs and is more particularly concerned with a swivel chair mounting having means for adjusting the height of the chair seat.

In my copending application for patent Serial No. 430,103, filed May 17, 1954, now Patent 2,704,113, issued March 15, 1955, I have described a form of adjusting means for swiveled chairs to change the height of the seat and the present invention is an improvement thereover.

An object of the present invention is the provision of a simple and inexpensive combination of elements which enables the user of a swivel chair to quickly and easily adjust the height of the seat without difficulty and without laborious and hand soiling manipulations.

Another object of the invention is the provision of a sturdy arrangement which utilizes only a few parts and which is simple and easy to assemble, which is long wearing, and which is not likely to get out of order.

A further object of the invention is the provision of a swivel chair mounting of the type mentioned and for the purpose indicated which employs as one element a special friction member between a supporting post and a receptacle thereof, and means for adjusting the friction of said member as required.

These and other objects and advantages of the invention will appear more fully from the following description considered together with the accompanying drawing.

In the drawing:

Fig. 1 is a vertical sectional view of a portion of a swivel chair containing an embodiment of this invention, the device being shown in full line in the lowered position of the chair seat and parts of the device in dotted lines in the uppermost position of the seat.

Fig. 2 is a fragmentary view of the upper portion of the embodiment.

Fig. 3 is a fragmentary cross sectional view of the split flange showing a modification of the embodiment.

Fig. 4 is a view similar to Fig. 3 showing another modification of the embodiment.

Referring with more particularity to the drawing in which like numerals designate like parts, the embodiment illustrated is disposed between a chair base A and a chair iron B, fragmentarily shown, the latter supporting the chair seat which is not shown in the drawing because it forms no part of the present invention.

The chair base A includes a center hub casting 1 having a central bore 2. Within the central bore 2, there is disposed a tubular lining member 3 which is secured in position by an outwardly flanged upper end or collar 4 and an outwardly flanged bottom edge forming a holding lip 5 against the bottom of the hub casting.

Between the flange 4 and the top edge 6 of the hub casting 1, there is disposed a base shell member 7 which extends outwardly to form the usual radial legs of the chair (not shown).

The inner side of the tubular member 3 is provided with internal threads 8 which extend downwardly from the top a substantial distance, but which terminate at a point

substantially as shown, to provide a non-threaded section 9 at the bottom. The inner side of the section 9 is reamed out or otherwise enlarged so as not to interfere with the external threads 10 of a post member 11 engaged with the internal threads 8.

To the bottom of the post 11, there is secured a vertical stop member in the form of a disc 12 which is held in place by a machine screw 13 threadedly engaged with a hole 14 in the bottom of the said post. The diameter of the disc 12 is greater than the inside diameter of the threaded portion of the tubular member 3 so as to abut the bottom of said threaded section, as shown in Fig. 1, and to prevent the post 11 from moving upward farther and out of the hub section.

The upper section 15 of the post 11 is not threaded, but has a smooth surface that slidably fits into an elongated socket 16 at the bottom of a center post 17 integral with or connected to the chair iron B.

The upper end of the socket 16 comprises a conical shaped wall 18 and the upper end of the post 11 is provided with a ball socket 19 immediately below the apex of the conical wall 18. The wall 18 rests upon a ball bearing 20 in the socket 19, whereby the chair seat is enabled to swivel freely upon the post 11. To prevent binding, the lower end of the socket 16 is recessed and provided with a bushing ring 21 in slidable engagement with the surface of the upper section of the post 11, while the inside diameter of the remaining portion of the socket is somewhat enlarged to remain out of contact with the post 11.

The post 11 and socket 16 are prevented from moving relative to each other axially by means of a set screw 22 disposed through the wall of the socket and having an inwardly extending finger portion 23 which engages an annular groove 24 of the post 11.

In the same annular groove 24, another finger 25 is disposed as part of an adjusting or clamping screw 26 in the wall of the socket 16. The screw 26 is preferably provided with an elongated shank 27 and handle 28 to permit it to be manually tightened and loosened. When tightened, the finger 25 is forced against the post 11 to act as a friction brake between it and the socket 16.

Normally, the finger 25 is retracted out of engagement with the post 11 to permit free swivelling between it and the socket 16. However, since friction cannot be completely eliminated, there is always a tendency for the post 11 to rotate with the socket 16 and hence to turn in the tubular member 3. Such turning would result in a raising or lowering of the chair seat at times when no change in the height position were desired. To counteract this tendency, friction between the threaded portion of the post 11 and the tubular member 3 is deliberately increased by cutting a horizontal slot 29 about half way through the flange 4 and bending the upper separated section 30 relative to the lower section. This may be done by inserting a prying tool (not shown) in the slot or by providing a horizontal wedge screw 31, as shown in Fig. 3, or a vertical abutment screw 32 as shown in Fig. 4.

The friction thus developed is made greater than the maximum amount of friction that could possibly be developed between the socket 16 and post 11 with the screw 26 in a retracted position, but which could be overcome by tightening up the screw 26 against the post 11.

Consequently, by tightening the screw 26, rotation of the chair seat will cause the post to rotate in the tubular member and cause the chair seat to be raised or lowered, depending on the direction of rotation. However, when the screw 26 is loosened, the chair seat swivels relative to the post 11 and any tendency to drag between the socket 16 and post 11 is effectively overcome by the bent section 30 of the flange 4.

The embodiment described above is adaptable to the use of a cover plate and dust shield consisting of a tubular member 33 surrounding the post 11 and socket 16 above the shell 7 and a skirt portion 34 connected thereto. The lower end of the tubular member 33 is made resilient by slots 35 and has an annular restricted portion 36 which snaps in place along an annular recessed groove 37 of the flange 4, substantially as shown. In using the modification shown in Fig. 3, the head of the screw 31 is exposed by openings 38 and 39 through the skirt 34 and the tubular member 33, respectively, for access by a screwdriver so that suitable adjustments can be made without removing or displacing the member 33 and shirt 34 from the flange 4.

I claim:

1. In a swivel chair having a chair base, said base having a hub section and a vertical bore in said hub section, a tubular lining secured in said bore, said lining having an external flange at the top, said lining having an upper portion thereof internally threaded, including said flange, a threaded post in said lining having its lower end below said threaded portion, the upper end of said post being adapted to rotatably support a chair seat socket, a member carried by said post below said upper threaded portion to abut the lower end of said threaded portion, said flange having a horizontal slot through a portion thereof separating said latter portion into an upper section and a lower section, one of said sections being bent relative to the other to increase friction between said one section and said post.

2. In a swivel chair having a chair base, said base having a hub section and a vertical bore in said hub section, a tubular lining secured in said bore, said lining having an external flange at the top, said lining having an upper portion thereof internally threaded, including said flange, a threaded post in said lining having its lower end below said threaded portion, the upper end of said post being adapted to rotatably support a chair seat socket, a member carried by said post below said upper threaded portion to abut the lower end of said threaded portion, said flange having a horizontal slot through a portion thereof separating said latter portion into an upper section and a lower section, and means for spreading said sections apart.

3. The subject matter as defined by claim 2 in which the means for spreading the sections apart comprises a wedge screw.

4. The subject matter as defined by claim 2 in which the means for spreading the sections apart comprises a screw threadedly engaged with one of the sections in a position for abutting the other section.

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