May 22, 1956 W. H. McKINLEY 2,746,705

CHAIR BASE

Filed Aug. 27, 1953

Fig. 1.

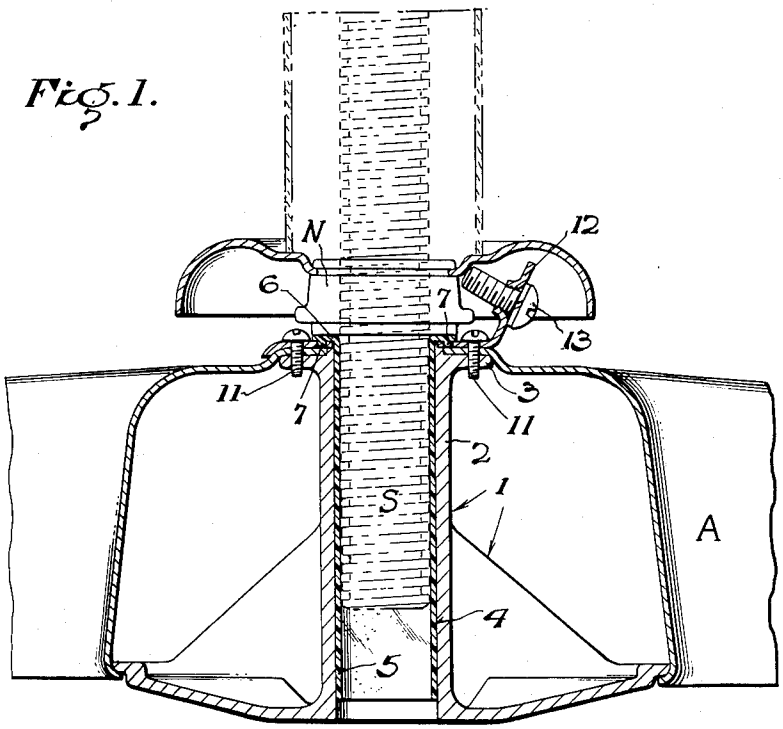


Fig. 2.

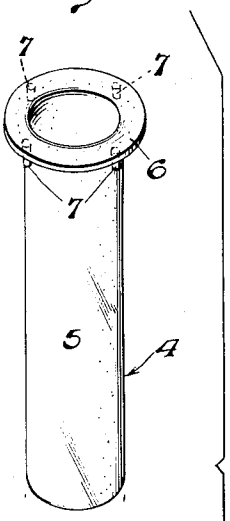
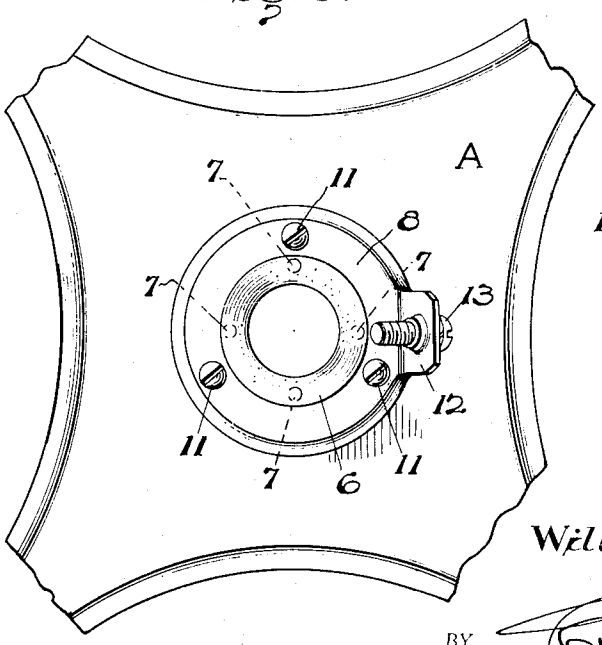
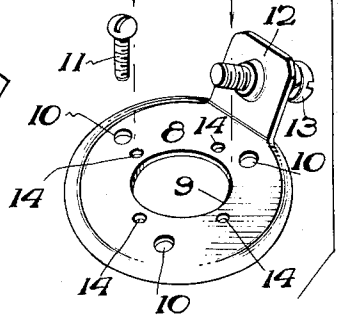


Fig. 3.





INVENTOR

William H. McKinley.

BY

ATTORNEY

United States Patent Office 2,746,705 Patented May 22, 1956

2,746,705

CHAIR BASE

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

Application August 27, 1953, Serial No. 376,946

3 Claims. (Cl. 248—194)

This invention relates to an improvement in chair bases, and more particularly to a base for swivel chairs.

One of the objects of the invention is to provide the hub of the chair base with a combined thrust and liner bearing for the portion of the spindle which fits into the spindle opening of the base. More especially, it is intended to provide a bushing of lubric material such as nylon or the like. In that connection, it is proposed to form the bushing which constitutes the bearing in such a way that it may be readily forced into the spindle receiving opening to provide a lining for the aluminum opening in the hub while the steel spindle will turn within the bushing itself.

A further object of the invention is to provide a nylon bushing to be fitted in the spindle opening in such a manner that the bushing will be held against rotation relative to the aluminum bore constituting the spindle receiving opening. If the nylon bushing itself should turn relative to the aluminum side wall of the opening, the nylon over a period of time will pick up aluminum by abrasive contact from the spindle receiving opening so that, in effect, there would be two contacting aluminum surfaces working against each other so that the nylon bushing will not function as a satisfactory bearing.

A further object of the invention is to assemble the nylon bushing in a novel manner with respect to the spindle opening in the hub of the base, as well as the means for connecting the base and the chair iron so that when the chair is lifted, the seat portion will not separate from the base. In other words, the bushing will be locked against angular as well as axial movement.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction and arrangement of parts shown in the accompanying drawings, in which:

Figure 1 is a fragmentary vertical sectional view of a chair base taken at the hub thereof and illustrating the present improvements.

Figure 2 is an exploded perspective view of the bushing and the lock clip for connecting the chair base and the chair iron.

Figure 3 is a top plan view of the construction shown in Figure 1 omitting portions of Figure 1 above the lock plate.

Similar reference characters designate corresponding parts in the several views.

Referring to Figure 1, the chair base is designated generally as A and includes the usual radial arms which carry the casters at their outer ends and which are not shown because they constitute no part of the present invention. The chair base is provided with a hub portion 1 which includes a tubular column 2 whose bore receives the lower end of the spindle and having an integral offset flange 3 at its upper end.

According to the invention set forth herein, it is proposed to provide the spindle receiving opening of the column 2 with a spindle bearing in the form of bushing 4

of lubric material, preferably nylon, and which includes a tubular shank portion 5 and a supporting and locking flange 6 at its upper end having lugs 7 formed at its underside. The flange 6 also functions as a thrust bearing so that the shank 5 and flange 6 serve as a combined thrust bearing and liner. The shank 5 is forced into the bore of the column 2 during the process of manufacture and forms a lubricous quiet bearing for the lower end of the spindle S.

As will be apparent from Figures 1 and 2, the nylon bushing 4 has its flange portion 6 intended for cooperation with a washer-type lock clip 8. This clip is of annular formation having an opening 9 for registry with the bore of the column 2 and is also provided with openings 10 for receiving screws 11 to secure the body of the clip to the flange 3 of the column. As shown, since the bushing flange 6 is of less diameter than the hub flange 3, the fastenings 11 may readily clear the said flange 6 to be secured in the hub flange. This clip is also provided with an angularly disposed and upwardly directed ear 12 having threaded therein a locking screw 13 which is intended to cooperate with the nut N on the spindle to connect the spindle to the base in a manner to prevent separation of the seat and base when the chair is lifted by the back or seat.

The body of the lock clip is also provided with openings 14 for receiving the lugs 7 formed on the underside of the flange 6 of the bushing.

In assembling the structure shown in the drawings, the lock clip 8 is first secured to the column by the screws 11 and then the bushing 4 has its shank forced into the spindle receiving opening of the column until the lugs 7 at the underside of the flange 6 engage in the openings 14 of the clip to prevent relative rotation between the bushing and the inner bore of the spindle receiving opening of the column. When the flange 6 of the bushing 4 is interlocked with the clip, as above described, it will be seen that the entire load imposed on the spindle will be imposed on the upper surface of the flange 6 so that the said flange is sandwiched between the lower face of the nut N and the body of the clip 8 so that axial movement of the bushing is prevented. It will, of course, be understood that the nut N, spindle S and the portions shown in dotted lines are part of what is called the chair iron.

When the lugs 7 are forced into the openings 14 of the clip, the bushing will be securely held in position until the chair base and chair iron including the spindle are assembled for use.

From the foregoing, it will be seen that the invention provides a bearing for the lower end of the spindle S, which bearing is held against rotation so that the spindle will rotate freely within the tubular portion 5 and there will be no possibility of the outer face of the shank or sleeve picking up metal particles so that in the case of an aluminum base and nylon bushing, two surfaces will not work against each other when the chair is in operation. It may be pointed out that nylon has no affinity for steel and, therefore, the inner bore of the shank 5 will permit the spindle to rotate freely and noiselessly in use.

Without further description, it is believed that the invention will be fully understood and it will, of course, be understood that modifications may be resorted to within the scope of the appended claims.

I claim:

1. A chair base including a vertically disposed tubular column having a laterally outwardly projecting flange adjacent the upper end thereof, said flange having a circumferential series of fastener receiving openings therein, a washer type clip disposed above said flange and having a circumferential series of fastener receiving openings therein in alignment with said first openings, fastenings

extending through the aligned openings of the two series thereof, a non-metallic bushing including a tubular shank disposed within said tubular column and whose inner cylindrical wall provides a bearing for the lower end of a seat spindle, the upper end of said tubular shank being provided with a laterally outwardly projecting flange having a smooth upper face and providing a thrust bearing for an adjusting nut on said spindle, and interfitting means between the lower face of said last flange and said washer for holding said tubular shank against rotation in said tubular column.

2. A cast aluminum chair base including a vertical column having a bore therein for receiving the lower end portion of a steel seat spindle having an adjusting nut thereon, a flange projecting laterally outwardly from the upper end of said column and being provided with a circumferential series of fastener receiving openings, a washer type chair iron clip disposed above said flange and having a spindle receiving opening centrally therein, a circumferential series of fastener receiving openings in said clip aligned with said first openings, fasteners extending through the aligned openings of both series thereof for rigidly securing said clip to said column, said clip being further provided with a circumferential series of openings radially inwardly of the fastener receiving openings therein, a non-metallic bushing of lubricous material including a tubular shank disposed within said bore and providing

a bearing for said lower end portion of said spindle, said bushing further including a horizontal flange projecting outwardly from the upper end of said tubular shank and bearing on said clip, the upper face of said flange being smooth and providing a thrust bearing for said adjusting nut on said last flange and said last flange having a circumferential series of lugs projecting from its lower face and engaged in the openings of said last series thereof for maintaining said bushing against rotation relative to said column.

3. The structure according to claim 2, wherein said clip is provided with a down turned circumferential edge portion overlying said column flange, and said clip being further provided with an upwardly directed ear, and a screw adjustably supported in said ear for engagement of the inner end thereof with said nut for preventing separation of the chair base from the chair seat.

References Cited in the file of this patent

UNITED STATES PATENTS

1,930,021	Powell	Oct. 10, 1933
2,021,187	Lafferty	Nov. 19, 1935

OTHER REFERENCES

Motor, October 1951, page 90. (Copy Div. 45, Pat. Off.)