

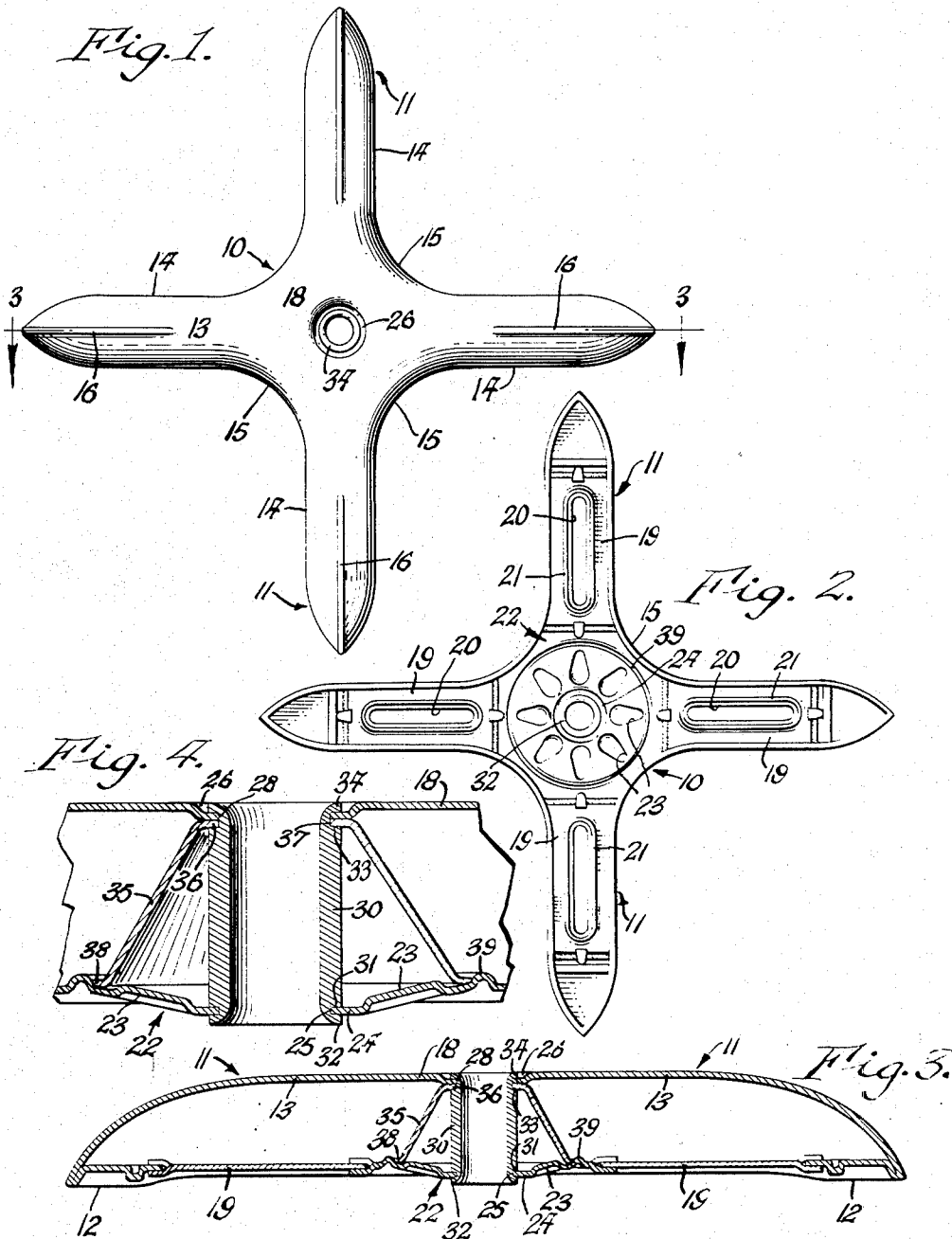
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BASE FOR SWIVEL CHAIRS

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BASE FOR SWIVEL CHAIRS

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This invention relates to chairs and more particularly to an improved base for swivel chairs.

It is well known to construct the base of a swivel chair of sheet metal and desirably so because of its rigidity, durability and relative lightness. Usually included in such a chair base is a bearing sleeve which rotatably receives the spindle or swivel post of the chair. It is also common to construct swivel chairs so that the chair is capable of tipping backwardly to increase the comfort of the user. It is therefore obvious that such a swivel chair in use imposes lateral and vertical loads on the bearing sleeve aforementioned which tend to displace or distort this bearing sleeve in its mounting in the chair base.

It is accordingly the principal object of the present invention to provide a swivel chair base in which the bearing sleeve is reinforced against displacement or distortion.

Another object is to achieve such reinforcement of the bearing sleeve in a simple, economical and lasting manner and by a structure which is not likely to get out of order or require repairs.

Other objects and advantages of the invention will be apparent from the following description and accompanying drawings in which:

Fig. 1 is a top plan view of a swivel chair base embodying the present invention.

Fig. 2 is an elevational view of the bottom thereof.

Fig. 3 is a vertical longitudinal central sectional view thereof taken on line 3—3, Fig. 1.

Fig. 4 is an enlarged fragmentary view of the central portion of the structure shown in Fig. 3.

In accordance with conventional practice, a blank of sheet metal of suitable gauge and of proper size and shape from which to produce the chair base, is pressed or otherwise formed to comprise a central portion 10 having radiating therefrom a plurality of legs 11.

The legs 11, which are duplicates of one another, are of substantially inverted U-shape in cross section and are formed to terminate in downturned terminal portions or feet 12. Casters (not shown) are adapted for connection with the feet 12 but inasmuch as this forms no part of the present invention such casters are not illustrated.

Each leg 11 is inclusive of a top wall 13 and a pair of side walls 14, 14 and, as shown, the adjacent side walls of adjacent legs are formed as curved continuations of one another at the central portion of the structure, these curved continuing or connecting portions being designated at 15 and defining the width of the central portion 10 between the legs 11.

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Preferably, as shown, the top wall 13 of each leg 11 is pressed to form a longitudinally extending scuff rib 16 at the outer end thereof to prevent marring of the top surfaces of the legs. These ribs 16 also serve to stiffen and reinforce the outer ends of the legs 11.

The top walls 13 of the legs 11 are integrally formed with a top plate or wall 18 which covers the central portion 10.

The lower edges of the side walls 14 of each leg 11 is shown as joined by a lower plate 19 which is made lighter by cutting out an elongated opening 20 and also reinforced by forming the metal of the lower plate into a continuous bead 21 which surrounds the opening 20. The longitudinal edges of the lower plates 19 may be connected to the respective side walls 14 in any suitable manner as by welding.

Enclosing the bottom of the central portion 10 is a central lower plate 22 which is shown as suitably connected to the inner ends of the lower leg plates 19 and also to the curved walls 15. The central lower plate 22 is preferably dished downwardly as shown and also is formed with a series of radial reinforcing integral ribs 23. The disk-like center portion 24 of the central lower plate 22 is flat and horizontal and provided with a central hole or opening 25.

The top plate 18 of the center portion 10 is preferably offset downwardly at its center to provide a disk-like center portion 26 which is flat and horizontal and has a central hole or opening 28 in registry with the lower hole 25.

A bearing sleeve 30 in the form of a cylindrical tube is shown as arranged between the upper and lower center portions 26 and 24 respectively. This bearing sleeve rotatably receives the spindle or swivel post (not shown) of the chair. The lower end of the bearing sleeve 30 is reduced and extends through the hole 25 in the central lower plate 22. The upper marginal surface of the center portion 24 of this lower plate engages a downwardly facing annular shoulder 31 and is held thereagainst by peening or rolling the lower extremity of the bearing sleeve 30 over the lower marginal surface of the center portion 24 as indicated at 32. In this manner the center portion 24 of the central lower plate 22 is firmly connected to the lower end of the bearing sleeve 30.

In a similar manner the upper end of the bearing sleeve 30 is reduced to provide an upwardly facing annular shoulder 33 and the upper extremity of this sleeve is peened or rolled over onto the upper surface of the center portion 26 of the top plate 18 as indicated at 34.

As conventionally practiced the lower surface of the center portion 26 of the top plate 18 directly engages the shoulder 33. In such a conventional construction it will be seen that the bearing sleeve 30 is solely supported by the marginal connections with the top plate 18 and central lower plate 22 and these plates are subject to flexure in a vertical direction and also to some lateral distortion, particularly the top plate 18.

In accordance with the present invention this undesirable condition is avoided by providing a bracing member 35 between the top plate 18 and central lower plate 22. This bracing member 35 is shown in the form of a frusto-conical sleeve member of sheet metal and the base of which bears against an abutment on the central lower plate 22 and the upper end of which is connected to the bearing sleeve 30. The upper end of the bracing member 35 is shown as formed with an inturned annular flange 36 which surrounds the reduced upper end of the bearing sleeve 30 and is arranged between the shoulder 33 and the center portion 26 of the top plate 22. The hole or opening 37 of this flange 36 closely fits the periphery of the reduced upper end of the bearing sleeve 30. From this annular flange 36 the bracing member 35 flares downwardly and outwardly and the lower rim portion is preferably outturned to provide a continuous annular lip 38. This lip 38 abuts the inwardly facing surface of an upstanding annular bead 39 which is formed in the central lower plate 22. Instead of the continuous bead 39 other types of abutments may be provided on the central lower plate 22.

Referring to Fig. 2, it will be seen that portions of the annular bead 39 are adjacent the curved side wall portions 15 of the central portion 10 of the base structure and hence there is rigid support for this bead both vertically and laterally.

It is to be noted that there is no connection between the lower end of the bracing member 35 and the central lower plate 22 other than an abutting engagement between the annular lip 38 and bead 39. As to the upper end of the bracing member, the flange 36 thereof is caught between the center portion 26 of the top plate 18 and the shoulder 33 on the bearing sleeve 30 so that special fastening elements are not required to mount the bracing member 35 of the present invention in the shell of the chair base.

In assembling a structure embodying the present invention, the bracing member is first arranged against the top plate 18 and the upper reduced end of the bearing sleeve is inserted through the registered holes 28 and 37. Following this the central lower plate 22 is placed over the lower end of the bearing sleeve 30, the lip 38 bearing against the inwardly facing side of the annular bead 39. The extremities of the bearing sleeve 30 may then be peened over to firmly lock the parts in place and, of course, the outer margin of the central lower plate 22 is suitably connected to the adjacent parts.

From the foregoing it will be seen that the present invention provides a reinforced sheet metal swivel chair base which is simple in con-

struction, easy to assemble and inexpensive to manufacture.

I claim:

1. In a sheet metal base for swivel chairs having a central portion including spaced upper and lower plates and a bearing sleeve arranged therebetween and connected at its lower end to said lower plate, said bearing sleeve having an upwardly facing shoulder adjacent its upper end above which said top plate is arranged, the combination therewith of bracing means comprising a sleeve member surrounding said bearing sleeve and having at its upper end an inturned flange arranged between said top plate and shoulder, means holding said top plate and flange against said shoulder, said sleeve member flaring downwardly and outwardly from said flanges and an annular abutment on said lower plate, and continuously engaging the lower rim of said sleeve member.

2. In a sheet metal base for swivel chairs having a central portion including spaced upper and lower plates and a bearing sleeve arranged therebetween and connected at its lower end to said lower plate, said bearing sleeve having an upwardly facing shoulder adjacent its upper end above which said top plate is arranged, the combination therewith of bracing means comprising a frusto-conical sleeve member surrounding said bearing sleeve and having at its upper end an inturned flange arranged between said top plate and shoulder, means holding said top plate and flange against said shoulder, the lower end portion of said sleeve member being outturned to provide an annular lip, and an annular abutment upstanding on said lower plate and surrounding and continuously engaging the rim of said lip.

3. In a sheet metal base for swivel chairs, the combination comprising upper and lower plates, a bearing sleeve arranged therebetween and connected at its lower end to said lower plate and at its upper end having an annular groove, said top plate having an annular portion arranged in said groove and closely fitting the base of said groove, a reinforcing sleeve member arranged between said plates and surrounding said bearing sleeve and having at its upper end an inturned annular flange arranged in said groove below said annular portion and closely fitting the base of said groove, said sleeve member flaring downwardly and outwardly from said flange, an annular abutment on said lower plate and continuously engaging the lower rim of said sleeve member, and a series of reinforcing ribs on said lower plate between said bearing sleeve and said annular abutment and radiating outwardly relative to said bearing sleeve.

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