

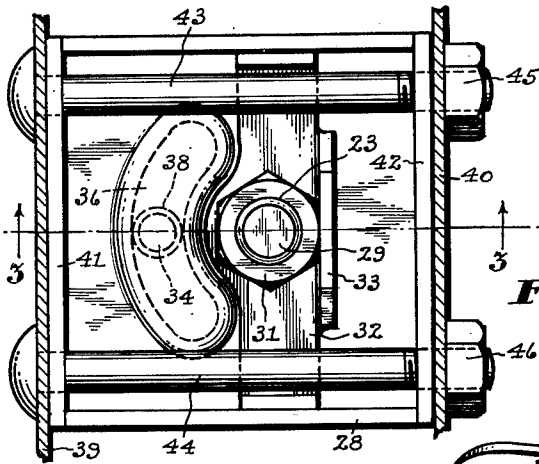
Sept. 1, 1953

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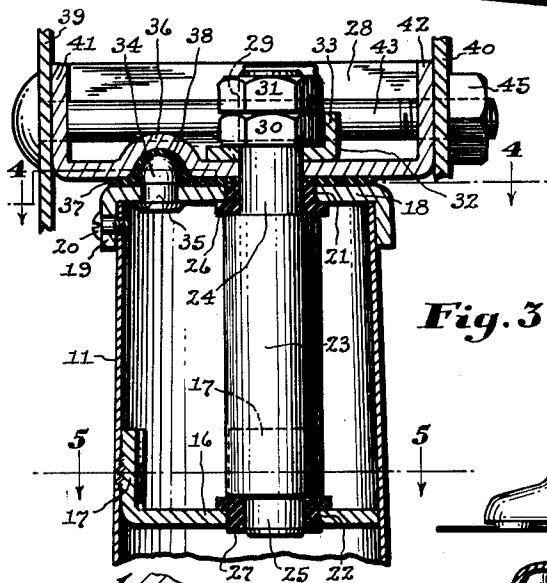
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CHAIR STRUCTURE

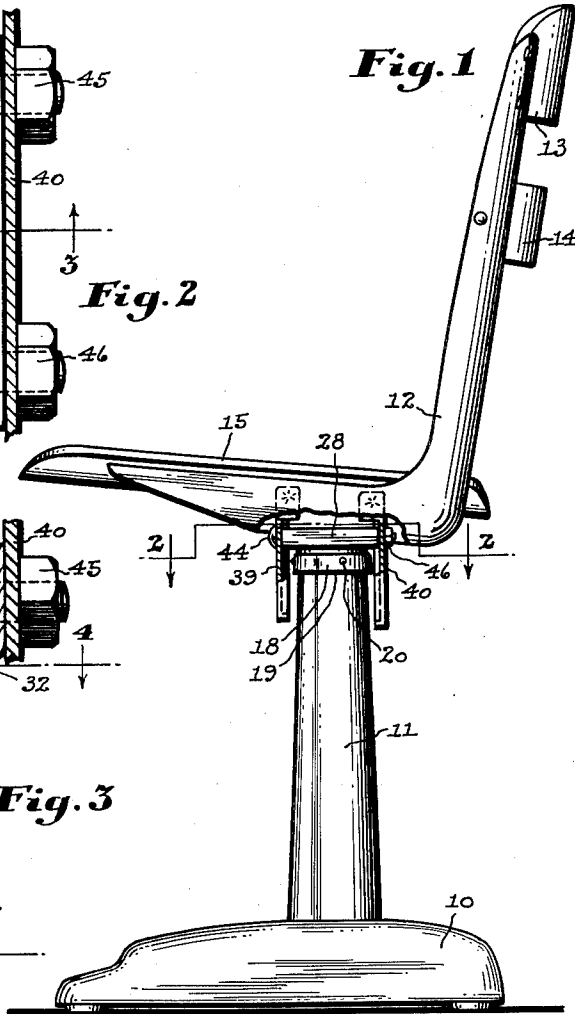
Filed Aug. 13, 1952



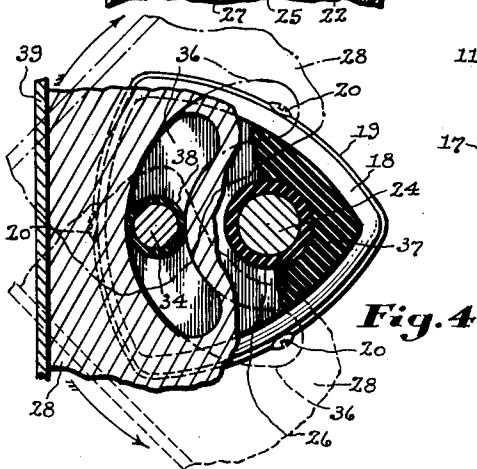
**Fig. 1**



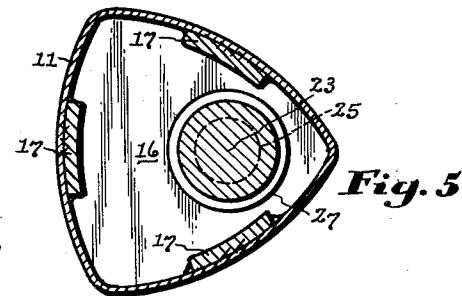
**Fig. 2**



**Fig. 3**



**Fig. 4**



**Fig. 5**

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# UNITED STATES PATENT OFFICE

2,650,648

## CHAIR STRUCTURE

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Application August 13, 1952, Serial No. 304,062

4 Claims. (Cl. 155—95)

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The present invention relates to chair structures and more particularly to swivel seat mountings.

The primary objects of the invention are to provide a seat swivel construction which is quiet in operation, long-wearing, simple and sturdy in construction and reasonably economical in manufacture.

An illustrative embodiment of the invention is shown in the accompanying drawing, wherein:

Figure 1 is a side elevational view of a chair having the new seat swivel, certain parts of the seat mountings being broken away to show parts beyond;

Figure 2 is an enlarged horizontal sectional view of the seat mountings, taken on line 2—2 of Figure 1;

Figure 3 is a vertical sectional view of the same taken on line 3—3 of Figure 2;

Figure 4 is a horizontal sectional view of parts thereof taken on line 4—4 of Figure 3; and

Figure 5 is a horizontal sectional view of other parts thereof taken on line 5—5 of Figure 3.

Referring now in detail to these drawings wherein like parts are designated by the same numerals in the several views, the chair there shown generally comprises a base 10, an upstanding tubular supporting column 11 secured to the base 10, and a chair proper mounted by means of the new swivel structure on the column 11 and comprising side frames 12, back rails 13, 14 and a seat 15.

Referring now particularly to the seat mountings, a bridge 16 is secured within the column near the upper end thereof and in substantially horizontal position by means of upstanding flanges 17 on the bridge which are secured as by spot welding to the inner side walls of the column 11. A cap 18 is secured to the upper extremity of the column 11 and serves as a closure therefor. This cap 18 has a depending peripheral flange 19 through which extend self-tapping screws 20 for securing the cap to the upper end of the column. The cap 18 and the bridge 16 are provided with vertically aligned bearing apertures therethrough, designated 21, 22 respectively, within which bearings is turnably disposed a pintle 23 having reduced diameter upper and lower end portions 24, 25 respectively. Bushings 26, 27 are interposed respectively between the bearing surfaces of the pintle's reduced upper end portion 24 and the cap's bearing 21, and between the bearing surfaces of the pintle's reduced lower end portion 25 and the bridge's bearing 22. These bushings 23, 27 are

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made of molded polyamide resin (nylon) which has both long-wearing and self-lubricating properties.

A chair bracket 28 is mounted on the extreme upper end 29 of the pintle 23, said extreme upper end of the pintle extending upwardly through an aperture in the bracket 28 and being threaded to receive an assembly nut 30 and a lock nut 31. The assembly nut 30 is keyed to the bracket 28 by means of a cross-piece 32 secured as by welding to the bracket and having an upstanding flange 33 flush against one of the facets of the assembly nut 30. Thus the chair bracket 28 is keyed to the pintle 23 and is turnable therewith.

The cap 18 is provided with an upwardly projecting stop 34 secured within an aperture in the cap as by spinning over the lower end 35 of the stop. The bracket 28 has an upwardly embossed arcuate raceway 36 therein, concentric with the pintle 23 and embracing the stop 34 therein. A washer 37 is interposed between the cap 18 and the chair bracket 28 and is provided with an embossing 38 which snugly embraces the upper semi-spherical surface of the stop 34 and which is adapted to contact the ends of the arcuate slot 36 to limit turning movements of the chair bracket 28, and the chair carried thereby. The washer 37 is likewise made of molded polyamide resin (nylon) because of its long-wearing and self-lubricating qualities, and also because it provides quiet cushioned stops for the chair in its swivelling movements.

The chair proper is fixedly mounted on the chair bracket 28 for turning movement therewith, in any suitable manner. As here shown, two cross-bars 39, 40 are secured to the front and rear vertical flanges 41, 42 of the bracket 28 by means of bolts 43, 44 having nuts 45, 46. The outer ends of these cross-bars 39, 40 are secured as by spot welding to the side frames 12 of the chair proper.

The swivel seat mounting is adjustable as to the amount of friction which is imposed on the seat in its turning movement. Such adjustment may be effected by removing the screws 20 and lifting the seat and seat mountings off the tubular column 11. The lock nut 31 is then loosened, whereupon the pintle 23 may be turned to adjust the friction as desired. The lock nut 31 is then tightened again and the seat and seat mountings reassembled to the tubular column 11.

It will thus be seen that the invention provides a seat swivel which is simple and rugged, long-wearing, self-lubricating and noiseless, and while but one specific embodiment of the invention has

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been herein shown and described, it will be understood that numerous details may be altered or omitted without departing from the spirit of the invention as the same is defined by the following claims.

We claim:

1. In a chair structure: a supporting column having a vertical bearing in the upper end thereof; a pintle turnably disposed in said bearing and extending above the column; a stop projecting upwardly from the upper end of the column; a chair bracket mounted on the upper end of the pintle turnably therewith and having an upwardly embossed arcuate raceway concentric with the pintle and embracing therein said stop; a chair seat secured to the bracket; and a molded washer interposed between the chair bracket and the upper end of the supporting column, said washer having an embossing snugly embracing the stop and adapted to contact the ends of the arcuate raceway to limit turning movements of the chair bracket and the chair seat carried thereby.

2. In a chair structure: a supporting column having a vertical bearing in the upper end thereof; a pintle turnably disposed in said bearing and extending above the column; a stop projecting upwardly from the upper end of the column; a chair bracket mounted on the upper end of the pintle turnably therewith and having an upwardly embossed arcuate raceway concentric with the pintle and embracing therein said stop; a chair seat secured to the bracket; and a molded polyamide resin washer interposed between the chair bracket and the upper end of the supporting column, said washer having an embossing snugly embracing the stop and adapted to contact the ends of the arcuate raceway to limit turning movements of the chair bracket and the chair seat carried thereby.

3. In a chair structure: a tubular supporting column; a horizontally disposed bridge secured within the column near the upper end thereof; a cap secured to the upper extremity of the column and closing the upper end thereof, said cap and said bridge having vertically aligned bearings therein; a pintle turnably disposed in said

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bearings and extending above the cap; bushings interposed between the bearing surfaces of said pintle and said cap and bridge; a stop projecting upwardly from the cap; a chair bracket mounted on the upper end of the pintle turnably therewith and having an upwardly embossed arcuate raceway concentric with the pintle and embracing therein said stop; a chair seat secured to the bracket; and a molded washer interposed between the cap and the chair bracket, said washer having an embossing snugly embracing the stop and adapted to contact the ends of the arcuate raceway to limit turning movements of the chair bracket and the chair seat carried thereby.

4. In a chair structure: a tubular supporting column; a horizontally disposed bridge secured within the column near the upper end thereof; a cap secured to the upper extremity of the column and closing the upper end thereof, said cap and said bridge having vertically aligned bearings therein; a pintle turnably disposed in said bearings and extending above the cap; polyamide resin bushings interposed between the bearing surfaces of said pintle and said cap and bridge; a stop projecting upwardly from the cap; a chair bracket mounted on the upper end of the pintle turnably therewith and having an upwardly embossed arcuate raceway concentric with the pintle and embracing therein said stop; a chair seat secured to the bracket; and a molded polyamide resin washer interposed between the cap and the chair bracket, said washer having an embossing snugly embracing the stop and adapted to contact the ends of the arcuate raceway to limit turning movements of the chair bracket and the chair seat carried thereby.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,639,371	Freeman	Aug. 16, 1927
2,339,953	Schlorman	Jan. 25, 1944
2,529,780	Miller	Nov. 14, 1950