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Fletcher

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[54] **MOUNTING DEVICE FOR FURNITURE**

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[52] **U.S. Cl.** **248/188.1,** 297/303, 297/326

[51] **Int. Cl.** **A47c 1/02**

[58] **Field of Search** 248/375, 399, 415, 425, 248/188.1, 188.7, 22, 24; 297/349, 314, 303, 326

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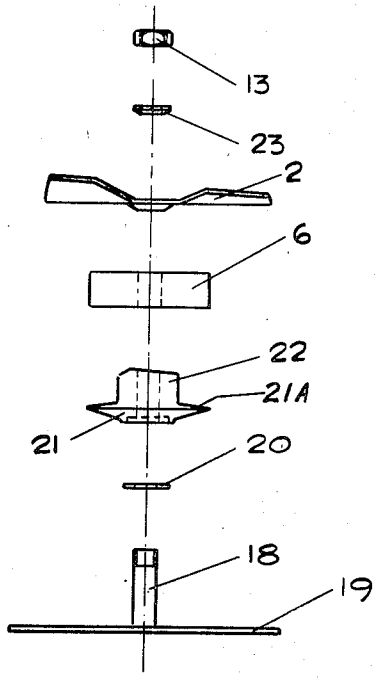
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[57] **ABSTRACT**

A mounting device for furniture comprising a mounting plate for securing to an article of furniture, a resilient pad compressibly interposed between the mounting plate and a body, a shaft extending through the body, the pad and mounting plate and means for clamping the mounting plate and the body together.

6 Claims, 5 Drawing Figures



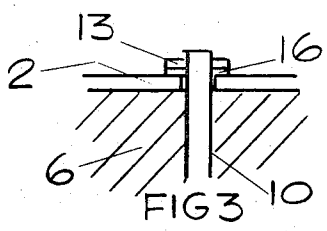


FIG 3

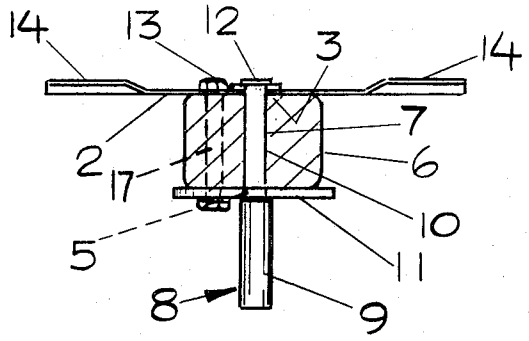


FIG 2

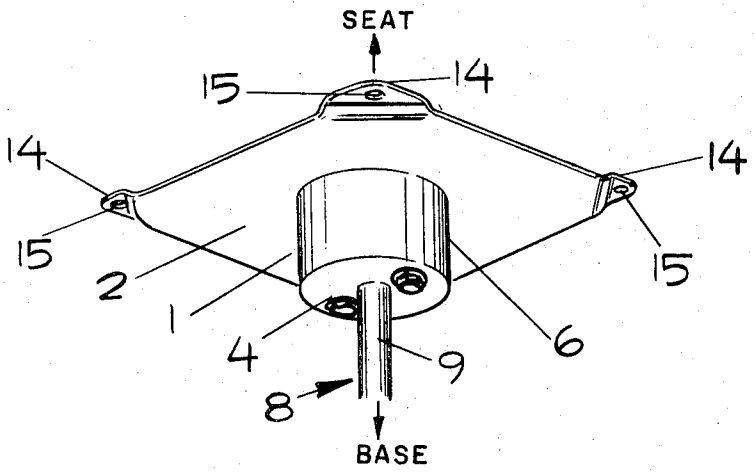


FIG 1

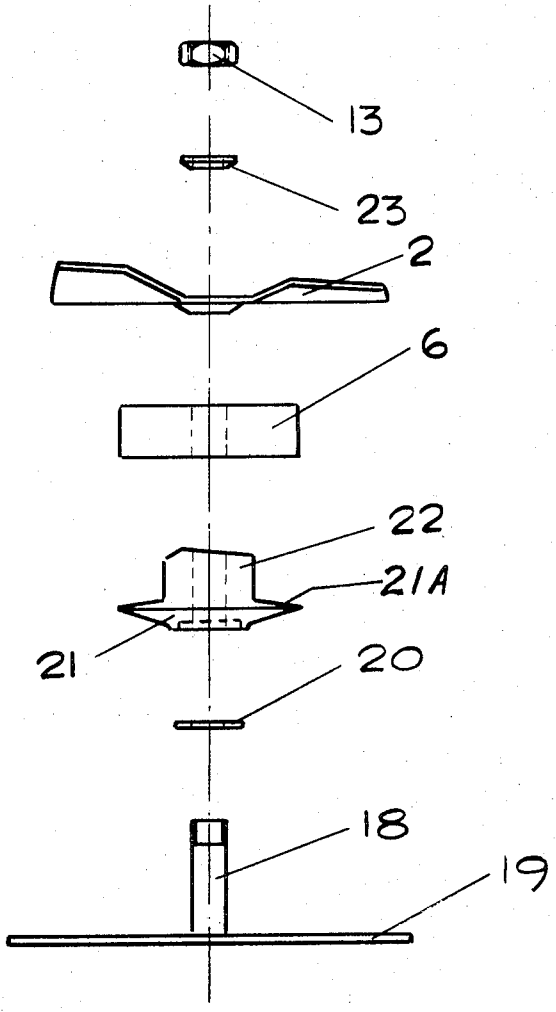


FIG 4

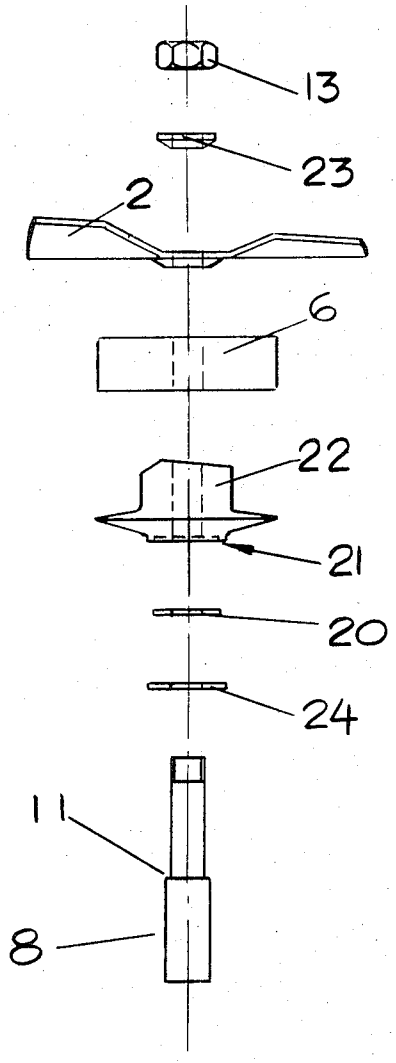


FIG 5

MOUNTING DEVICE FOR FURNITURE

The present invention relates to a mounting device for furniture, e.g., a chair seat, which mounting device may be interposed between the seat of the chair and a column support for the chair.

It has already been proposed to provide a rocker-swivel chair in which the chair is secured to a column rotatably mounted on a swivel base and includes a metal box-like construction having a spring-loaded lid which provides the desired rocking movement. This construction however is liable to damage through misuse and is expensive to manufacture.

The present invention aims to overcome this disadvantage and aims to provide a mounting device for this and other types of furniture which will allow for slight rocking movement thereof relative to a support.

According to the invention there is provided a mounting device for furniture comprising a mounting plate for securing to an article of furniture, a resilient pad compressibly interposed between the mounting plate and a body, a shaft extending through the body, the pad and the mounting plate and means for clamping said mounting plate and said body together.

Suitably said shaft has two portions of different diameter to form a shoulder against which the further plate bears, wherein the portion of smaller diameter extends through the further plate, the pad and the mounting plate. Preferably the end of the shaft emerging from the mounting plate is threaded to receive a nut which bears against the mounting plate.

Suitably the pad is cylindrical in shape, the axis of the pad may be either perpendicular or parallel to the axis of the shaft which passes therethrough. However other shapes of pad may be adopted instead.

In one embodiment, the body is in the form of a further plate.

In a further embodiment, the pad is held in a holder having side portions to limit rocking movement of the mounting plate relative to the body.

The clamping means may also include at least two bolts which hold said plates together and to limit rocking movement of the mounting plate relative to the body.

A bush or washer may be interposed between the shaft, the nut and the mounting plate so as to reduce the possibility of noise.

Also the mounting plate and the further plate may be so shaped as to conform with the shape of said pad.

The invention will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of a chair seat mounting device;

FIG. 2 is a side view of the device of FIG. 1 partly in section.

FIG. 3 is a detail of FIG. 2 showing a modification.

FIG. 4 is an exploded side view of another embodiment and

FIG. 5 is an exploded side view of a further embodiment.

With reference to the drawings the chair seat mounting device for use with swivel chairs is generally shown at 1. Except where stated, the components of the device are suitably made from steel. A mounting plate 2 is suitably of generally rectangular shape and has a central aperture 3. A disc-shaped plate 4 has a central aperture 5 of the same diameter as that of aperture 3 in the mounting plate. Interposed between the plate 4 and mounting plate 2 is a cylindrical pad 6 formed of a resilient material such as a synthetic rubber and having a bore 7 extending coaxially therethrough. A shaft generally represented at 8 is of two portions a top portion 10 (FIG. 1 and 2) which is of a smaller diameter and a bottom portion 9 of larger diameter wherein a shoulder 11 is formed between the two portions. The portion 10 of smaller diameter extends through the aperture 5 of the plate 4, through the bore 7 of the pad and through the aperture 3 of the mounting plate. The end 12 of the shaft 12 which protrudes beyond the top surface (FIG. 2) of the mounting plate 2 is threaded to receive a nut 13.

The plate 4 bears against the shoulder 11 of the shaft 8 so that on turning the nut 13 in an appropriate direction the plate 4 bears against the pad 6 and mounting plate 2, thus compressing the pad 6. When the pad 6 has been compressed to a desired extent, the nut 13 is locked by any known means, for example the nut 13 may be spot welded to the shaft 8.

Where the movement of the action of the device is to be restricted, this may be done by the insertion of pins or bolts 17 through the pad 6, between the plate 4, and the plate 2, alternatively outside the pad 6 between plates 2 and 4 the extent of restriction depending upon the size of the pins or bolts 17.

Mounting plate 2 can be strengthened by ribbing or shaping where necessary and can also be shaped to facilitate rocking action.

FIG. 3 illustrates a further embodiment according to the invention in which a bush or washer 16 is placed around the shaft 10 between the nut 13 and the mounting plate 2 in order to reduce the possibility of noise. If desired the aperture 3 may be shaped to correspond to the shape of the washer.

The corners 14 of the mounting plate 2 are turned up so as to provide clearance between the nut 13 and the bottom surface of a chair seat (not shown) to which the chair seat mounting device is to be attached. Apertures 15 are provided at the corners of the mounting plate 2 to receive bolts or like fastening means for attaching the mounting plate to the bottom surface of the chair seat. The lower part of the portion 9 may be received into a hollow cylindrical bearing (not shown) of a column secured to a base for the chair (not shown).

If desired the shaft 8 could be held rigid and a swivelling movement of the body 21 would still be possible.

FIG. 4 shows an exploded view of a mounting device comprising a spindle 18 of constant diameter secured to a base plate 19 which mounting feet (not shown) may be secured.

The device comprises a nylon washer 20 which is received into a shaped aperture in a holder 21 having side walls 22. A pad 6 having an axial length shorter than its radius is contained in the holder 21 and is compressed against the plate 2 when assembled. A lock nut 13 screws onto the end of the spindle 18 and is locked in position against plate 2 through a convex shaped washer 23. In use, the side walls 22 prevent rocking movement except in the plane of the paper. The compressive strength of the pad 6 may be reduced by drilling holes or slots at appropriate positions therein and by arranging the pad 6 so that the holes or slots face to

the left or right as viewed in FIG. 4. If the pad were arranged so that the holes were covered by the side walls 22 then the compressive strength of the pad 6 would be substantially unchanged. Thus the compressive strength of a given pad may be changed by merely rotating the pad 6 relative to the holder 21. The dimensions and compressive strength of the pad 6 are chosen to be such that the side walls 22 do not contact the plate 2 in any position, once the device is assembled. Beveled edges 21A facilitate, and help to control, the rocking of the seat. Additionally, they serve as limit stops for the rocking.

FIG. 5 shows an embodiment substantially the same as that of FIG. 4 except that spindle 18 has been replaced by the shaft 8 of FIGS. 1 and 2 and a metal washer 24 bears against the shoulder 11, when the device is assembled.

The size of the device can be chosen according to requirement.

The material selected for the chair seat may be wood or ABS, polystyrene, rigid polyurethane, GRP or other synthetic material.

The chair frame may be constructed of tubular metal, wood or any suitable synthetic material. It will be appreciated that the invention may be used in the construction of other types of furniture for example settees and beds, in which case, a plurality of devices would be used.

What is claimed is:

1. A rocker and swivel device adapted for use in a seat assembly comprising a seat, a base, and a rocker and swivel device providing for rocking and swivelling of the seat relative to the base; comprising: first mounting means adapted for securance to the underside of the seat to support the latter, second mounting means adapted for mounting on the base, a pad support, a resilient pad mounted on the support, means clamping together the support and the first mounting means adapted to apply a compressive force to the resilient pad, the first mounting means being rockable with respect to the support with deformation of the resilient pad, opposed side walls on the support preventing sideways rocking of the first mounting means and the seat, the top edge of each side wall being shaped to facilitate forward and rearward rocking of the first mounting means on the side walls, and swivel means providing swivelling of the seat with respect to the base.

2. A rocker and swivel device according to claim 1, the support having opposite marginal edges between said side walls, each said marginal edge being bevelled and the resilient pad overlying said bevels to facilitate rocking.

3. A rocker and swivel device according to claim 1 including first and second mounting plates defining respectively said first and second mounting means, the swivel means being a shaft mounted on the second mounting plate and extending through the resilient pad and the first mounting plate, an end portion of said shaft having a screw thread, and a nut engaged with said end portion so as to clamp together the two mounting plates and apply compressive force to the resilient pad.

4. A rocker and swivel device according to claim 3 including a washer between said first mounting plate and said nut, and a bevelled peripheral edge on said washer co-operable with said first mounting plate to facilitate rocking of the first mounting plate with respect to said washer.

5. A rocker and swivel device according to claim 1 including a mounting plate defining the first mounting means, a swivel shaft defining the swivel means, the shoulder being on the swivel shaft between its ends, a first end portion of the swivel shaft having a screw thread, the swivel shaft extending through the resilient pad and the mounting plate, a nut engaged with said end portion so as to clamp the resilient pad between the mounting plate and said shoulder, and a second end portion of the swivel shaft engaged in a socket of the base.

6. A rocker and swivel device according to claim 5 including a washer between said first mounting plate and said nut, and a bevelled peripheral edge on said washer co-operable with said first mounting plate to facilitate rocking of the first mounting plate with respect to said washer.

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