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(54) Adjustable foot.

(57) An adjustable foot (1) of a piece of furniture, machine or an other object which is provided with a supporting block (3) having a screw-threaded rod (4) that is screwed into a part of the object (2), said foot comprising according to the invention one or more spacing pieces (9) which can be placed between the supporting block (3) and the part of the object (2).

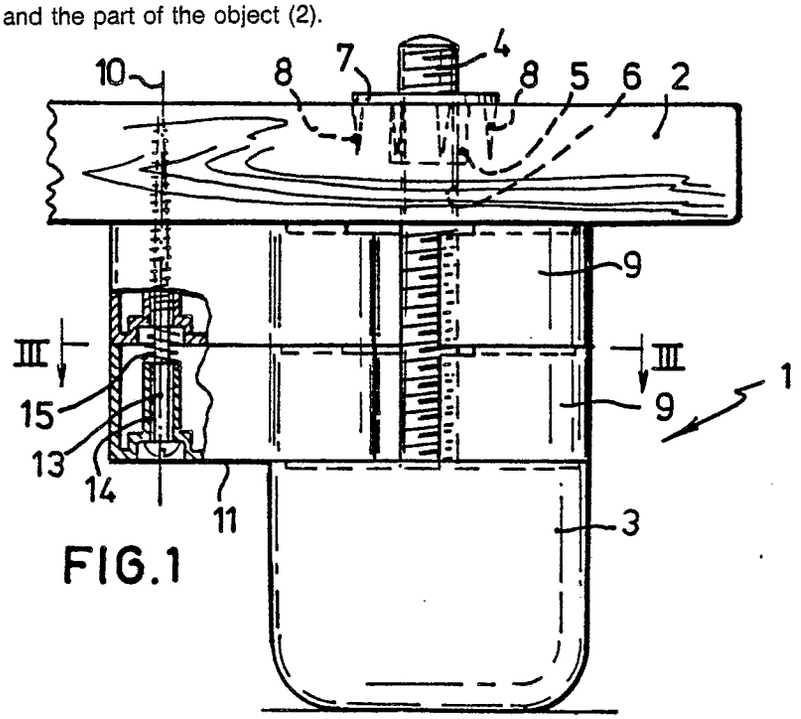

FIG.1

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An adjustable foot

The present invention relates to an adjustable foot for a piece of furniture, machine or an other object, which is provided with a supporting block having a screw-threaded rod that is screwed into a part of the object.

Such an adjustable foot is at present applied on a large scale for furniture, such as sofas and the like, but also for refrigerators, deep-freezers, photocopiers and the like. With furniture said adjustable feet especially serves to change the height of the seat and with cooling systems, machines and the like to level the system concerned. When the part of the object or the device into which the rod of the foot is screwed, is manufactured of wood or synthetic material, usually a metallic bushing with internal screw thread is mounted in the part of the object in order to give the screw-threaded connection as long a life as possible. However, the screw-threaded compound between the foot and the part of the object is not only in axial direction heavily loaded by the weight of the object and the load thereon with sitting furniture and lying furniture, but is also strongly loaded by bending upon normal use of the piece of furniture, and with shifting the piece of furniture or the other system over the floor. As a result of that the screw thread of the rod of the foot and/or of the screw threaded-bushing in the object in question is often rapidly deformed and/or the screw-threaded rod is bent, so that the adjustable foot cannot be used properly anymore or cannot be used at all.

The purpose of the invention is to abolish these objections of the known adjustable foot.

This purpose is attained, because according to the invention the foot comprises one or more spacing pieces which can be placed between the supporting block and the part of the object.

When applying said measure, upon use of the adjustable foot, that is to say with a completely or partly unscrewed supporting block, the axial load on the screw-threaded connection and the bending load on the screw-threaded rod is removed substantially completely, in that the supporting block can be screwed securely against the spacing piece(s), so that the axial load on the screw-threaded connection and the bending load on the screw-threaded rod can be taken up substantially completely by the spacing pieces.

With a preferred embodiment of the adjustable foot according to the invention each spacing piece is pivotably mounted to the part of the object and is provided with a substantially radial slot, in which the screw-threaded rod can be inserted.

As a result that each spacing piece is inseperably mounted to the part of the object and can easily be brought in and out the position of use, while owing to the radial slots said spacing piece can be placed concentrically with respect to the screw-threaded rod and the supporting block.

With a special efficient embodiment of the adjustable foot according to the invention the supporting block and each spacing piece at their planes directed to each other are provided with centering elements.

Because of the centering elements the supporting block and all spacing pieces can always be placed easily in the correct position with respect to each other.

The invention will be further elucidated on the basis of the drawing with an example.

Figure 1 is partly a side-view and partly a cross-section of the adjustable foot according to the invention having two spacing pieces in use;

figure 2 is a side-view of the adjustable foot according to the invention having one spacing piece in use;

figure 3 is a plan view of the spacing piece according to the line III-III in figure 1 and

figure 4 is a cross-section of the spacing piece according to the line IV-IV in figure 3.

The invention is further elucidated on the basis of the figures 1-4 in the form of an adjustable foot for a piece of furniture in particular a sitting piece of furniture, but of course it can also be applied on a lying piece of furniture, a cupboard, a machine or still an other object.

The adjustable foot 1 according to the invention is mounted to a part of an object or a frame part 2 of a sitting piece of furniture, which frame part 2 may consist of a wooden or metallic beam, or of synthetic material.

The adjustable foot 1 is provided with a supporting block 3 of e.g. rubber or synthetic material, in which a screw-threaded rod 4, e.g. a bolt is solidly secured, for example casted in or vulcanized. The rod 4 is screwed into a screw-threaded bush 5, which is mounted with a a press fit in a bore 6 in the frame part 2 and which is provided with a flange 7 having axial extending teeth 8 which are driven into the frame part 2.

According to the invention the adjustable foot 1 comprises one or more spacing pieces 9, which can be placed between the supporting block 3 and the frame part 2. With the drawn example two equal spacing pieces 9 are applied which according to figure 1 are both in use and according to figure 2 one of which is in use.

Each spacing piece 9 is pivotably mounted about a centerline 10 to the frame part 2 by means of a radial extending arm 11 with a bore 12, which

is parallel to the screw-threaded rod 4 and through which a journal-shaped screw 13 extends which is screwed into the frame part 2. The bore 12 is applied in a multi-staged bushing 14,which is formed in the hollow arm 11 and forms one piece with said arm, figure 1. Between the two spacing pieces 9 a compression spring 15 is mounted on the screw 13, said spring upon unscrewing the supporting block presses the arms 11 and therewith the spacing pieces 9 away from each other, so that they can easily be pivoted in and out their active position.

As appears from figures 1, 3 and 4 also the spacing pieces 9 are made hollow, that means bowl-shaped with reinforcing ribs 16, and they are provided with a substantially radial slot 17 for inserting the screw- threaded rod 4, which slot 17 is limited by a U-shaped wall 18 which forms one piece with the reinforcing ribs 15, the outer wall 19 and tha bottom 20 of the spacing pieces 9.

Because of the hollow embodiment of the spacing piece 9 with the arm 11, a large saving of material can be reached; the spacing piece 9 with the arm 11 can, however, also be massive, e.g. for heavy furniture and machines.

According to the invention the supporting block 3 and each spacing piece 9 at their planes directed to each other are provided with centering elements. These centering elements consist with the drawn embodiment of a recess 21 in the upper surface 22 of the spacing pieces 9 and of the supporting block 3 and of a projection 23 at the under surface 24 of the spacing pieces 9. The recess 21 in the spacing pieces 9 is formed, because the upper edges of the reinforcing ribs 16 and the upper edges of the U-shaped wall 18 lie lower than the upper edge of the outer wall 19 of the spacing piece 9. The recess 21 in the upper surface of the supporting block 3 has the same shape and dimensions as those in the spacing pieces 9, whereby the shape and the dimensions of the recesses 21 and the projections 23 are substantially equal.

The spacing pieces 9 and the supporting block 3 are in plan view substantially circular and have an equal outer diameter. However, they can also have other shapes.

The two spacing pieces 9 have an equal thickness with the drawn embodiment, but the spacing pieces may also have different thicknesses and also more than two spacing pieces can be applied which have e.g. a stepwise increasing thickness. With machines or other apparatus which have to be positioned very exactly horizontally, e.g spacing pieces can be applied, the thinnest of which e.g. is 0.1 mm thick or even thinner, and the thickest is 1 mm thick or more and the thickness of which each time increases with 0.1 mm. There the supporting block 3 and the frame part 2 are preferably manufactured of metal.

When placing the piece of furniture, the machine and the like on a plane floor the height of the supporting block 3 should always be somewhat larger than the total thickness of all spacing pieces 9.

It is remarked as yet that the substantially radial slot 17 in the spacing piece 9, which proceeds according to an arc with the center point on the centerline 10, ends at the inside in a half circular bent part 17', the center point of which in the active position of the spacing piece 9 coincides with the centerline of the rod 4 and the radius of which is somewhat larger than that of the rod 4.

Claims

1. An adjustable foot for a piece of furniture, machine or other object provided with a supporting block having a screw-threaded rod, that is screwed into a part of the object, characterized in that the foot (1) comprises one or more spacing pieces (9) which can be placed between the supporting block (3) and the part of the object (2).

2. An adjustable foot according to claim 1, characterized in that each spacing piece (9) is pivotably mounted to said part of the object (2), and is provided with a substantially radial slot (17), in which the screw-threaded rod (4) can be inserted.

3. An adjustable foot according to claim 1 or 2, characterized in that the supporting block (3) and each spacing piece (9) at their planes (22, 24) directed to each other are provided with centering elements (21, 23).

4. An adjustable foot according to claim 2 or 3, characterized in that each spacing piece (9) is pivotably mounted to said part of the object (2) by means of a radial extending arm (11), which is provided with a bore (12) which is parallel to the screw-threaded rod (4) and through which bore a journal extends which is screwed into said part of the object (2).

5. An adjustable foot according to claim 4, characterized in that each time a compression spring (15) is mounted between two spacing pieces (9) on the journal (13).

6. An adjustable foot according to claim 3, 4 or 5,characterized in that the centering elements on the one hand consist of a recess (21) in the one plane (22) of the supporting block (3) and of each spacing piece (9) and on the other hand consist of a projection (23) on the other plane (24) of each spacing piece (9), the shape and dimensions of the recesses (21) and the projections (23) being substantially equal.

7. An adjustable foot according to one of the preceding claims, characterized in that said spacing pieces (9) have different thicknesses.

8. An adjustable foot according to one of the preceding claims, characterized in that all spacing pieces (9) and the supporting block (3) are substantially circular in plan view and have the same outer diameter.

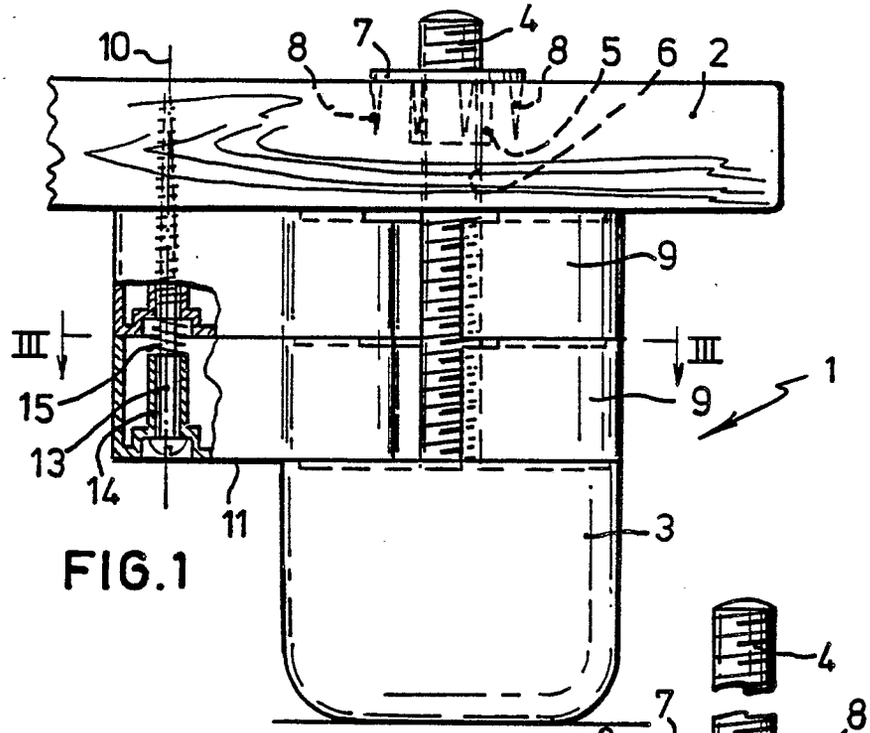

FIG.1

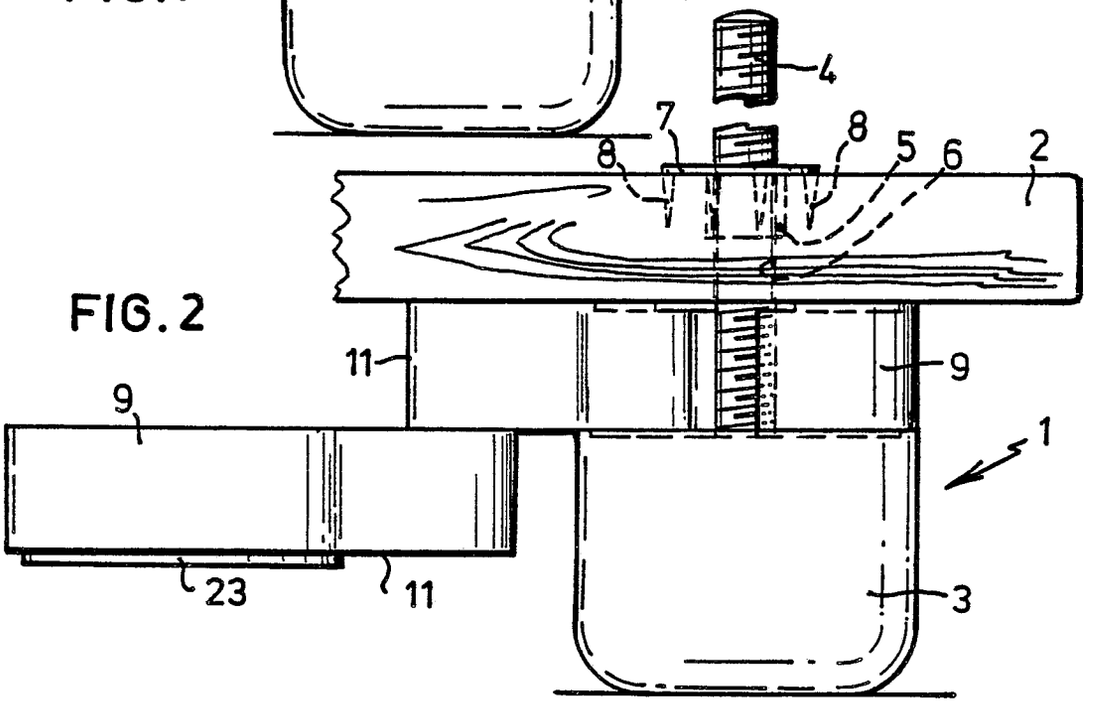

FIG.2

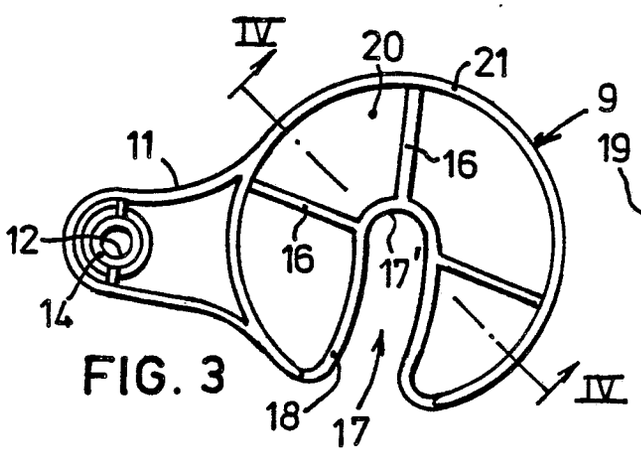

FIG. 3

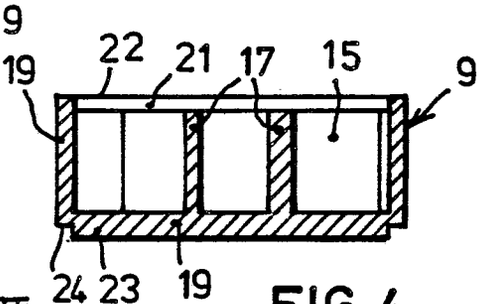

FIG.4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 20 1356

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	US-A-3 232 253 (WINTERS) * Figures 4,7; column 1, lines 70-72; column 2, lines 1-51 *	1,8	A 47 B 91/02
X	FR-A-2 208 288 (CHENE) * Figure 4; page 1, lines 18-29 *	1,3,8	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

A 47 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28-11-1988	NOESEN R.F.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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