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(12) # EUROPEAN PATENT SPECIFICATION

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Description

The present invention relates to an adjustable foot for a piece of furniture, machine or an other object, provided with a supporting block having a screw-threaded rod that is screwed into a part of the object, in which the foot comprises one or more spacing pieces which can be placed between the supporting block and the 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 expecially serve 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 connections as long a life as possible.

Such an adjustable foot is known from FR-A-2,208,288 comprising the nearest prior art. With this known adjustable foot in one embodiment the first spacing piece is provided with a bore, through which a screw is screwed into the said part of the object. Said bore is at the lower end extended with a screw-threaded bore with a larger diameter, into which a second similar spacing piece is screwed, which at its lower end is also provided with a screw-threaded bore, into which a third similar spacing piece or a screw with a head with a large diameter can be screwed, the latter being used as support on the floor.

In a second embodiment the first spacing piece is provided with a long shank with a screw-threaded bore which is inserted into a tube-shaped part of the object. At its lower end the first spacing piece is provided with a recess, into which is fitted a projection of the second spacing piece, said projection having the same shape and dimensions as the recess. In this way more than two spacing pieces may be mounted to the bottom of the said part of the object. The lower spacing piece may be provided with rounded head resting on the floor.

This known adjustable foot has the disadvantage that the application and the removal of the spacing pieces is an awkward and time-consuming job. Another disadvantage is that the spacing pieces, when not in use, can get lost easily.

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

This purpose is attained, in that according to the invention as defined in the characterising portion of independent Claim 1 each spacing piece is pivotably mounted to said part of the object and is provided with a substantially radial slot, in which the screw-threaded rod can be inserted.

By applying these features each spacing piece is inseperably mounted to the part of the object and can be easily and quickly brought into and out of 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 preferred embodiment of the adjustable foot according to the invention as defined in Claim 2 the supporting block and each spacing piece at their surfaces directed towards each other are provided with centering elements.

By means 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.

With a special efficient embodiment of the adjustable foot according to this invention as defined in Claim 3 each spacing piece is pivotably mounted to said part of the object by means of a radially extending arm, which is provided with a bore which is parallel to the screw-threaded rod and through which bore a journal extends, which is screwed into said part of the object. With this embodiment the spacing pieces can be easily swung into and out of their correct active position.

Further prefered embodiments are defined in dependant claims 4 to 7.

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.

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 the 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 surfaces 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 flat 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 extends along an arc of a circle with the center point on the centerline 10, ends at the inside in a curved part 17′, in the shape of a half circle, 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 (1) for a piece of furniture, machine or other object, provided with a supporting block (3) having a screw-threaded rod (4), that is screwed into a part of the object (2), in which 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), **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.

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

3. An adjustable foot according to claim 1 or 2, **characterized in that** each spacing piece (9) is pivotably mounted to said part of the object (2) by means of a radially 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 (13) extends which is screwed into said part of the object

(2).

4. An adjustable foot according to claim 3, **characterized in that** between each two spacing pieces (9) a compression spring (15) is mounted on the journal (13).

5. An adjustable foot according to claim 2, 3 or 4, **characterized in that** the centering elements on the one hand consist of a recess (21) in the one surface (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 surface (24) of each spacing piece (9), the shape and dimensions of the recesses (21) and the projections (23) being substantially equal.

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

7. 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.

Revendications

1. Pied réglable (1) pour meuble, machine ou autre objet, pourvu d'un bloc de support (3) comportant une tige filetée (4), qui est vissée dans une partie de l'objet (2), ce pied (1) comprenant une ou plusieurs pièces d'espacement (9) qui peuvent être disposées entre le bloc de support (3) et la partie susdite de l'objet (2), caractérisé en ce que chaque pièce d'espacement (9) est montée à pivotement sur la partie susdite de l'objet (2) et comporte une fente sensiblement radiale (17) dans laquelle la tige filetée (4) peut être introduite.

2. Pied réglable suivant la revendication 1, caractérisé en ce que le bloc de support (3) et chaque pièce d'espacement (9) comportent, à leurs surfaces (22, 24) dirigées l'une vers l'autre, des éléments de centrage (21, 23).

3. Pied réglable suivant la revendication 1 ou 2, caractérisé en ce que chaque pièce d'espacement (9) est montée à pivotement sur la partie susdite de l'objet (2) grâce à un bras radial (11) qui comporte un passage (12) parallèle à la tige filetée (4) et à travers lequel s'étend un axe (13) qui est vissé dans la partie susdite de l'objet (2).

4. Pied réglable suivant la revendication 3, caractérisé en ce qu'un ressort de compression (15) est monté sur l'axe (13) entre deux pièces d'espacement (9).

5. Pied réglable suivant la revendication 2, 3 ou 4, caractérisé en ce que les éléments de centrage consistent, d'une part, en une cavité (21) prévue dans la surface (22) du bloc de support (3) et de chaque pièce d'espacement (9) et consistent, d'autre part, en une saillie (23) prévue sur l'autre surface (24) de chaque pièce d'espacement (9), la forme et les dimensions des cavités (21) et des saillies (23) étant essentiellement identiques.

6. Pied réglable suivant l'une des revendications précédentes, caractérisé en ce que les pièces d'espacement (9) ont des épaisseurs différentes.

7. Pied réglable suivant l'une quelconque des revendications précédentes, caractérisé en ce que toutes les pièces d'espacement (9) et le bloc de support (3) sont essentiellement circulaires en vue en plan et ont essentiellement le même diamètre extérieur.

Patentansprüche

1. Verstellbarer Fuss (1) für ein Möbelstück, eine Maschine oder einen anderen Gegenstand, der einen Stützblock (3) mit einer Gewindestange (4) aufweist, die in einem Teil des Gegenstandes (2) geschraubt ist, in dem der Fuss ein oder mehrere Distanzstücke (9) enthält die zwischen dem Stützblock (3) und dem Teil des Gegenstandes (2) angeordnet werden können, **dadurch gekennzeichnet,** dass jedes Distanzstück (9) schwenkbar auf dem genannten Teil des Gegenstandes (2) montiert ist und eine im wesentlichen radiale Nute (17) aufweist, in der die Gewindestange (4) aufgenommen werden kann.

2. Verstellbarer Fuss nach Anspruch 1, **dadurch gekennzeichnet,** dass der Stützblock (3) und jeder Distanzstück (9) an ihren einander gegenüberliegenden Flächen (22, 24) Zentrierelemente (21, 23) aufweisen.

3. Verstellbarer Fuss nach Anspruch 1 oder 2, **dadurch gekennzeichnet,** dass jeder Distanzstück (9) schwenkbar an dem genannten Teil des Gegenstandes (2) montiert ist mittels eines radial erstreckenden Arms (11), der eine Bohrung (12) aufweist die parallel zu der Gewindestange (4) ist und durch welche Bohrung

hindurch sich einen Drehzapfen erstreckt, der in dem genannten Teil des Gegenstandes (2) geschraubt ist.

4. Verstellbarer Fuss nach Anspruch 3, **dadurch gekennzeichnet,** dass zwischen je zwei Distanzstücke (9) eine Druckfeder (15) auf dem Drehzapfen (13) montiert ist.

5. Verstellbarer Fuss nach Anspruche 2, 3 oder 4, **dadurch gekennzeichent,** dass die Zentrierelemente einerseits aus einer Aussparung (21) in der eine Fläche (22) des Stützblocks (3) bzw. jedes Distanzstücks (9) und andererseits aus einem Vorsprung (23) an der anderen Fläche (24) jedes Distanzstücks (9) bestehen, wobei die Form und die Abmessungen der Aussparungen (21) und der Vorsprünge (23) im wesentlichen gleich sind.

6. Verstellbarer Fuss nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet,** dass die Distanzstücke (9) verschiedene Dicken haben.

7. Verstellbarer Fuss nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichent,** dass alle Distanzstücke (9) und der Stützblock (3) in Draufsicht im wesentlichen kreisförmig sind und denselben Aussendurchmesser haben.

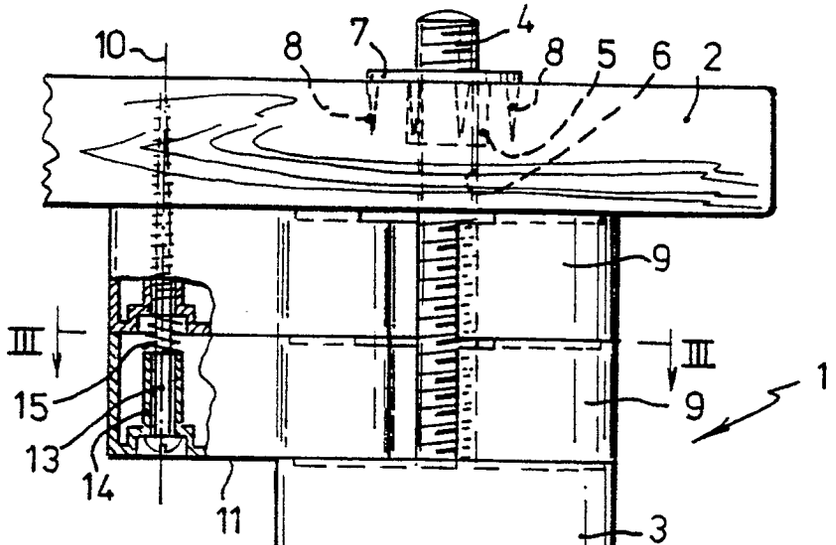

FIG.1

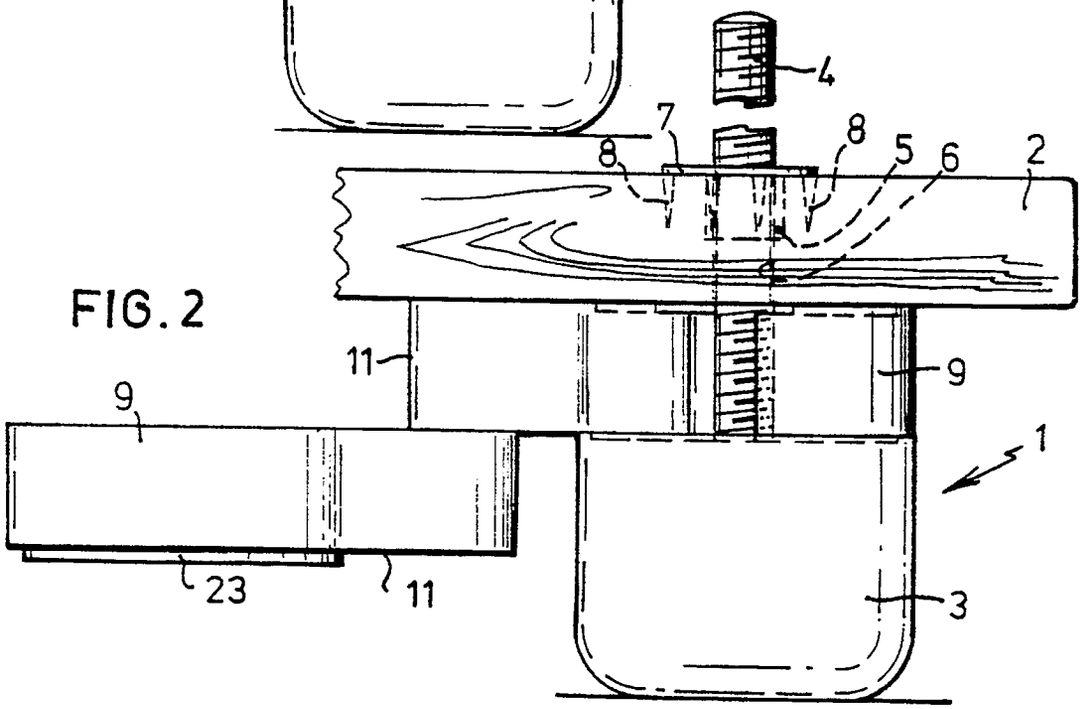

FIG.2

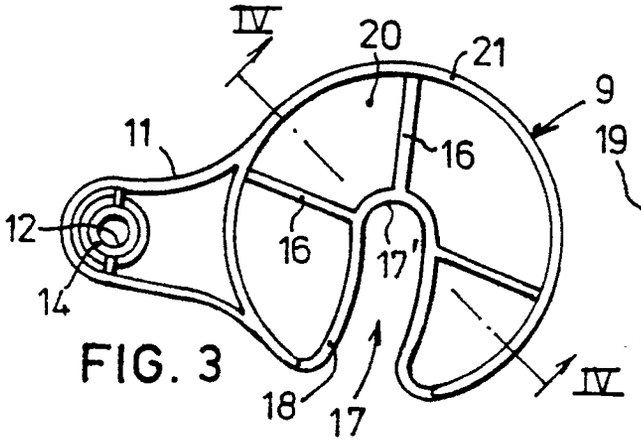

FIG. 3

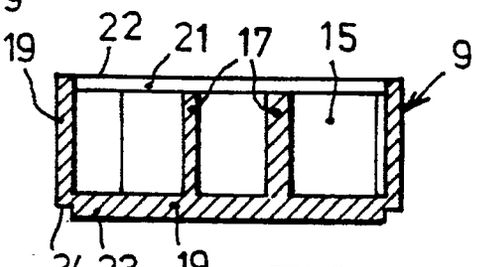

FIG.4