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(71) Applicant:
Uniflair International S.A.
1660 Luxembourg (LU)

(72) Inventor: **Pincus, Catzel, Dr.**
7806 Cape Town (ZA)

(74) Representative:
Freylinger, Ernest T. et al
Office de Brevets
Ernest T. Freylinger S.A.
234, route d'Arlon
Boîte Postale 48
8001 Strassen (LU)

(54) **Pedestal for an elevated floor assembly**

(57) A pedestal for an elevated floor assembly includes a base plate (18) fixed to the lower end of a column for providing a support platform for the column. The base plate (18) is obtained from a metal sheet by a process of deep drawing, wherein: a cup like depression (34) is worked in the centre of the upper side of the plate, and cuneiform depressions (36₁ ... 36₆) are worked in the upper side of the collar surrounding the central depression (34), so that the undersides of the cuneiform depressions (36₁ ... 36₆) form substantially flat cuneiform support surfaces of the base plate (18). The cuneiform depressions (36₁ ... 36₆) are separated by radially extending U-shaped loops (40₁ ... 40₆) of the metal sheet, which form reinforcing braces. The lower end of the column is preferably press fit into the central cup like depression (34).

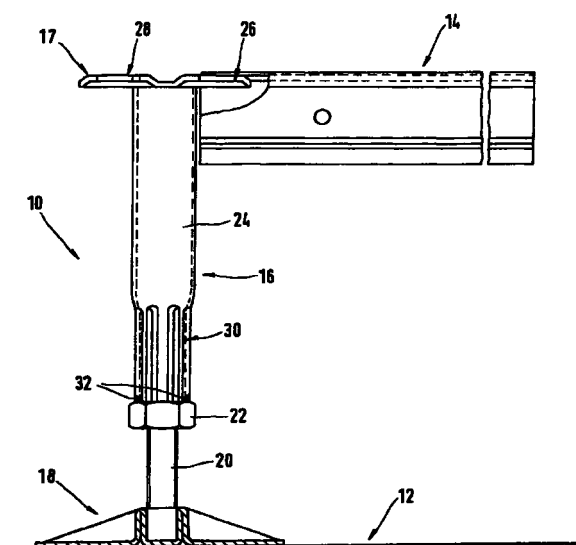


Fig.1

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Description

Introduction

[0001] The present invention relates to a pedestal for supporting an elevated floor assembly on a substantially flat surface.

[0002] Such pedestals include a column, a supporting head fixed to the upper end of the column, so as to be capable of supporting the elevated floor assembly, and a base plate fixed to the lower end of the column for providing a support platform for the pedestal. The length of the column is generally adjustable, so that the height of the pedestal can be adjusted. In order to be capable of supporting heavy floor loads, all the supporting parts of the pedestal are generally made of metal, most often steel.

[0003] For fixing the column to the base plate, it is known to screw one end of the column in a threaded opening in the base plate. However, manufacturing such a screwed connection is rather expensive and the screwed connection constitutes a weak point of the pedestal, more particularly with regard its mechanical rigidity.

[0004] There are also prior art base plates comprising a substantially flat ground plate on which a tubular socket is welded. The free end of the column is then screwed in the tubular socket of the base plate. Reinforcing braces can be radially arranged around socket and welded to the socket and the ground plate. Such a welded base plate has of course a higher mechanical rigidity than the screwed base plate, but its manufacturing is also much more expensive. Same applies for prior art base plates that are cast.

Object of the invention

[0005] A technical problem underlying the present invention is to provide a pedestal for an elevated floor assembly that is less expensive to manufacture and warrants nevertheless a high mechanical rigidity. This problem is solved by a pedestal as claimed in claim 1.

General description of the invention

[0006] Just as a prior art pedestal, a pedestal in accordance with the present invention includes a column, a supporting head fixed to the upper end of the column, so as to be capable of supporting the elevated floor assembly, and a base plate fixed to the lower end of the column for providing a support platform for the column on the surface. The base plate has an underside facing the surface on which the pedestal is to be supported and an opposite upper side facing the elevated floor assembly. A socket projecting from the upper side has a cavity therein, and the lower end of the column is received in this cavity. Reinforcing braces are radially arranged around the socket. A pedestal in

accordance with the present invention distinguishes over prior art pedestals in that it is obtained from a metal sheet by a process of deep drawing. During this process a cup like depression is worked in the center of the upper side of the plate, so as to form the cavity surrounded by a collar, and cuneiform depressions are worked in the upper side of the collar, so that the undersides of the cuneiform depressions form substantially flat cuneiform support surfaces of the base plate. These cuneiform depressions are separated by radially extending U-shaped loops of the metal sheet, which form the reinforcing braces. It will be appreciated that such a base plate is inexpensive to manufacture and provides nevertheless a very high rigidity under high floor loads. It constitutes a very stable support platform for the pedestal and warrants a very even distribution of the load onto the surface on which it rests.

[0007] The lower end of the column is advantageously press fit into the cup like depression, so that no screwing, riveting or welding is necessary for fixing the base plate to the column. It will be appreciated in this context that the above described features of the base plate warrant a very solid and stable mechanical fit of the column in the base plate.

[0008] In a preferred embodiment of the pedestal, the underside of the cup like depression forms an additional, substantially flat support surface in the centre of the base plate and contributes thereby to a still better stability of the pedestal.

[0009] Mechanical rigidity of the base plate is even further increased, if the cuneiform depressions are arranged so that the metal sheet is doubled in their apex. In other words, the apexes of the cuneiform depressions form vertical reinforcements arranged around the cup receiving the lower end of the column. This feature has of course an advantageous effect on the press-fit-connection between the column and the base plate too.

[0010] In the preferred embodiment of the base plate, the height of the U-shaped loops linearly diminishes from the rim of the cavity, where they have a height substantially equal to the depth of the cavity, to the rim of the collar, where they have a height substantially equal to zero. In other words, the braces formed by the U-shaped loops have in a side view the form of a rectangular triangle.

[0011] The collar of the base plate has a rim which is preferably substantially flat. The depth of the cup like depression is preferably about the same as its diameter.

[0012] In the preferred embodiment of the pedestal, the column comprises a threaded rod, a bearing nut screwed on the threaded rod and a support tube. A first end of the support tube is placed over a first end of the threaded rod and supported thereon by the bearing nut. The second end of the support tube is fixed to the supporting head, whereas the second end of the threaded rod is axially received within the cup like depression in the centre of the base plate.

[0013] The base plate is preferably square shaped and has at least six cuneiform depressions separated by six reinforcing braces.

Detailed description with reference to the Figures

[0014] The present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

- Figure 1: is a side view of a pedestal in accordance with the present invention, comprising a base plate which is shown as a section;
 Figure 2: is a top view of the base plate shown in Figure 1;
 Figure 3: is a section along section line 3-3 in Figure 2;
 Figure 4: is a section along section line 4-4 in Figure 2; and
 Figure 5: is a section along section line 5-5 in Figure 2.

[0015] Figure 1 shows a pedestal 10 in accordance with the present invention, which is mounted on a surface 12 to support thereon an elevated floor assembly, of which only a single panel stringer 14 is shown. The pedestal 10 comprises a column, which is globally identified with reference number 16, a supporting head 17 fixed to the upper end of the column 16, and a base plate 18 fixed to the lower end of the column 16. The column 16 consists of a threaded rod 20, a bearing nut 22 screwed on the threaded rod 20 and a hollow support tube 24. The lower end of the support tube 24 is placed over the upper end of the threaded rod 20 and supported thereon by the bearing nut 22. It follows that the support tube 24 can be raised or lowered by screwing the bearing nut 22 on the threaded rod 20, so that the height of the pedestal can be freely adjusted. The upper end of the support tube 24 is welded to the supporting head 17. The latter includes normally four or eight supporting arms to which the panel stringers 14 are screwed. On Figure 1 only two supporting arms 26, 28 are seen. The floor panels are not shown on Figure 1. They rest on the panel stringers 14. In order to immobilise the support tube 24 in rotation until the panel stringers 14 are fixed to the supporting arms 26, the lower end of the tube 24 is crimped to have peripheral indentations 30 co-operating with protrusions 32 on the nut 22. It will be appreciated that crimping of the lower end of the support tube 24 is not only an inexpensive method to provide a high number of equally spaced peripheral indentations 30 to be engaged by the protrusions 32, thus providing a high degree of height adjustment flexibility, but it improves rigidity and axial stability of the support tube 24 and minimises axial play between the support tube and the threaded rod 20 too.

[0016] An important aspect of the present invention is the newly conceived base plate 18, which will now be

described in detail with reference to Figures 2 to 5.

[0017] This base plate 18 is obtained by a process of deep drawing from a metal sheet. A cup like depression 34 is worked in the center of the upper side of the square shaped plate, so as to form a central cavity surrounded by a peripheral collar. The depth of the central depression 34 is about the same as its diameter. Six cuneiform depressions 36₁ ... 36₆, are worked in the upper side of the collar, so that the undersides of the cuneiform depressions 36₁ ... 36₆ form substantially flat cuneiform support surfaces 38₁ ... 38₆ of the base plate 18. Figure 4 shows a longitudinal section through the cuneiform depressions 36₃ and 36₆ defining the support surfaces 38₃ and 38₆. An additional support surface 38₇ is formed in the centre of the base plate by the underside of the cup like depression 34. As seen on Figure 1, the cuneiform depressions 36₁ ... 36₆ are separated by upstanding U-shaped loops 40₁ ... 40₆ of the metal sheet, which extend radially from the central cup 34 to the border of the plate. Figure 5 shows a cross-section through the loop 40₁, which is separating the cuneiform depressions 36₃ and 36₄ from one another. Figure 3 shows a longitudinal section through U-shaped loops 40₁ and 40₄, whereas an elevation of U-shaped loops 40₃ and 40₅ is seen on Figure 4. The height of the U-shaped loops 40₁ ... 40₆ linearly diminishes from the rim of the cavity 34, where the loops have a height substantially equal to the depth of the cavity 34, to a substantially flat rim 44 of the collar, where they have a height substantially equal to zero. It will be appreciated that the U-shaped loops 40₁ ... 40₆ have the effect of reinforcing braces of a central socket in which the cavity 34 is located. Each of these reinforcing braces has the form of a rectangular triangle in a side view.

[0018] The lower end of the rod 20 is press fit into the cup like depression 34 of the base plate 18, so that no screwing, riveting or welding is necessary for fixing the base plate 18 to the column 16. It will be appreciated that the special design of the bases plate 18 warrants an especially strong mechanical connection between the base plate 18 and the column 16.

[0019] Referring to Figure 4 it will be noted that the cuneiform depressions 36₁ ... 36₆ are arranged so that the metal sheet is doubled in their apex. In other words, the apexes of the cuneiform depressions 36₁ ... 36₆ form vertical reinforcements 46 arranged around the cup 34 receiving the lower end of the rod 20.

[0020] The base plate 18 is preferably a square shaped plate with holes 48 in the four corners for screwing the base plate 18 to the surface 12. The size of the square shaped plate may for example be about 100 x 100 mm and its wall thickness about 2 mm.

Claims

1. A pedestal for supporting an elevated floor assembly (14) on a substantially flat surface (12), said pedestal (10) including:

a column (16);

a supporting head (17) fixed to the upper end of said column (16), so as to be capable of supporting said elevated floor assembly (14); and a base plate (18) fixed to the lower end of said column (16) for providing a support platform for said column (16) on said surface (12);

wherein said base plate (18) has:

an underside facing the surface (12) on which the pedestal (10) is to be supported and an opposite upper side facing the elevated floor assembly (14);

a socket projecting from said upper side, said socket having a cavity therein, and the lower end of said column (16) being received in said cavity; and reinforcing braces that are radially arranged around said socket;

characterised in that

said base plate (18) is obtained from a metal sheet by a process of deep drawing, wherein: a cup like depression (34) is worked in the centre of the upper side of said plate, so as to form said cavity surrounded by a collar, and cuneiform depressions (36₁ ... 36₆) are worked in the upper side of said collar, so that the undersides of said cuneiform depressions (36₁ ... 36₆) form substantially flat cuneiform support surfaces (38₁ ... 38₆) of the base plate (18), said cuneiform depressions (36₁ ... 36₆) being separated by radially extending U-shaped loops (40₁ ... 40₆) of said metal sheet, which form said braces.

2. The pedestal as claimed in claim 1, characterised in that the lower end of the column (16) is press fit into said cup like depression (34).

3. The pedestal as claimed in claim 1 or 2, characterised in that the underside of said cup like depression (34) forms an additional substantially flat support surface (38₇) in the centre of said base plate (18).

4. The pedestal as claimed in any one of claims 1 to 3, characterised in that said cuneiform depressions (36₁ ... 36₆) are arranged around the central cup (34) so that said metal sheet is doubled in the apex of each cuneiform depression (36₁ ... 36₆).

5. The pedestal as claimed in any one of claims 1 to 4, characterised in that the height of said U-shaped loops (40₁ ... 40₆) linearly diminishes from the rim (42) of said cup like depression (34), where they have a height substantially equal to the depth of said cup like depression (34), to the border of said

collar, where they have a height substantially equal to zero.

6. The pedestal as claimed in any one of claims 1 to 5, characterised in that said collar of the base plate (18) has a rim (44) which is substantially flat.

7. The pedestal as claimed in any one of claims 1 to 6, characterised in that the depth of said cup like depression (34) is about the same as its diameter.

8. The pedestal as claimed in any one of claims 1 to 7, characterised in that said column (16) comprises a threaded rod (20), a bearing nut (22) screwed on said threaded rod (20) and a support tube (24), wherein:

the support tube (24) is placed with a first end over a first end of the threaded rod (20) and supported thereon by the bearing nut (22); the second end of said support tube (24) is fixed to said supporting head (17); and the second end of said threaded rod is axially received within said cup like depression in the centre of said base plate (18).

9. The pedestal as claimed in any one of claims 1 to 8, characterised in that the lower end of said support tube (24) is crimped to have several peripheral indentations (30), and said nut (22) has several protrusions (32) engaging said indentations (30) to prevent a relative rotation of the nut (22) and the support tube (24).

10. The pedestal as claimed in any one of claims 1 to 9, characterised in that said base plate (18) is square shaped.

11. The pedestal as claimed in any one of claims 1 to 10, characterised in that said base plate (18) has at least six cuneiform depressions (30₁ ... 36₆) separated by six U-shaped loops (40₁ ... 40₆).

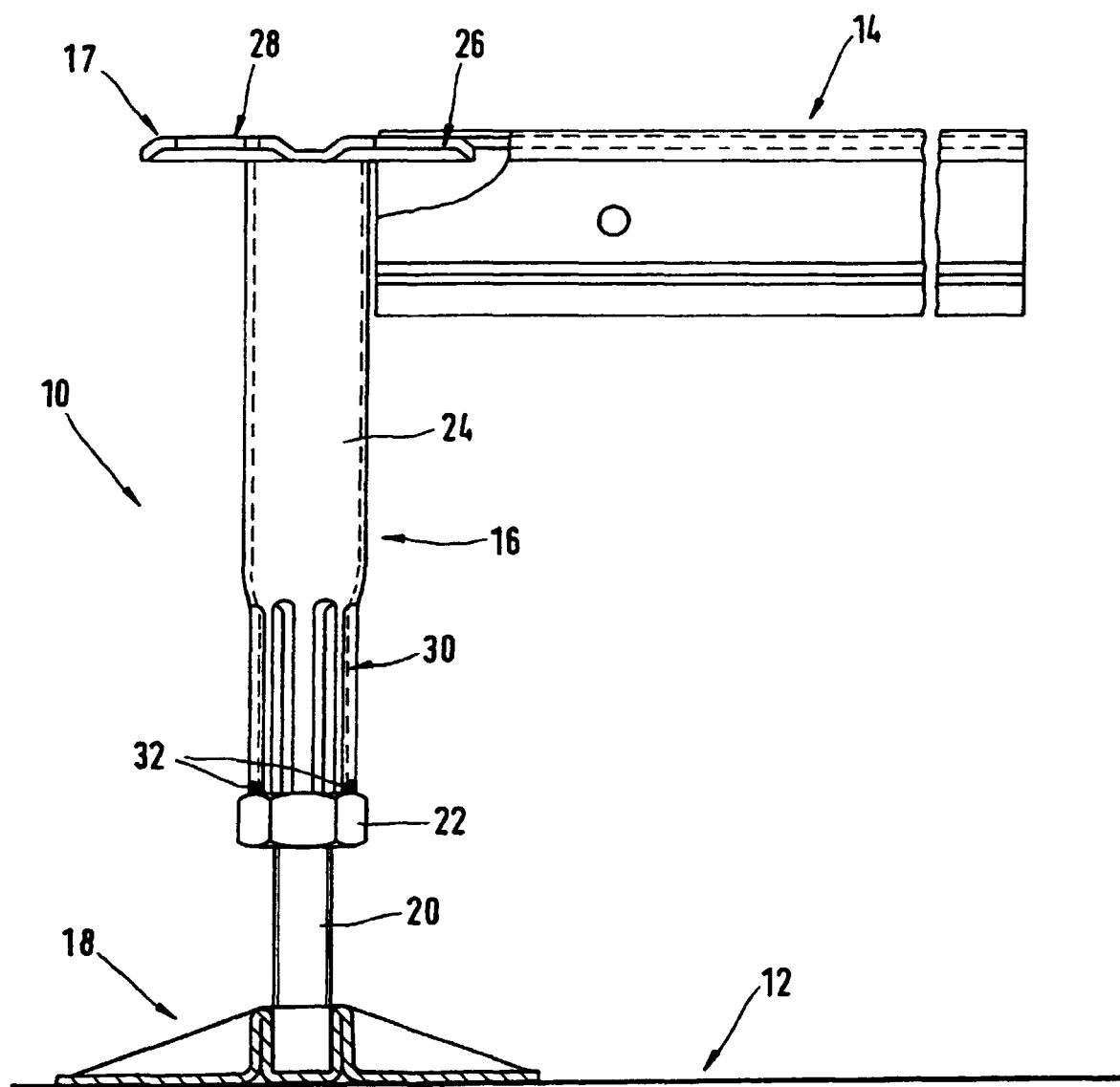
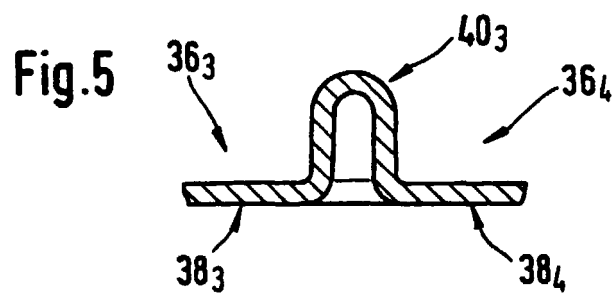
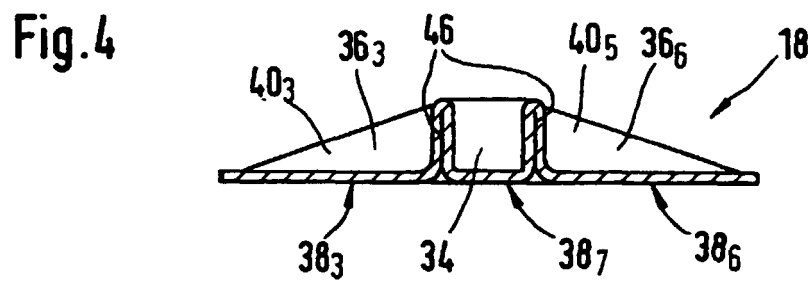
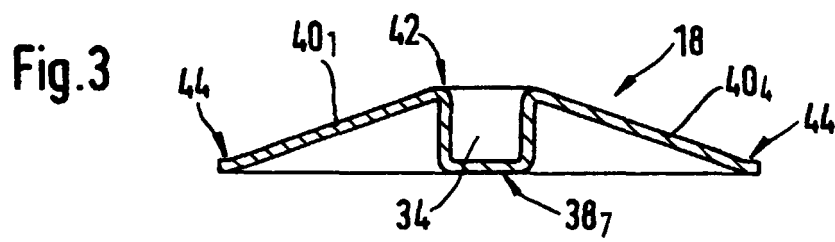
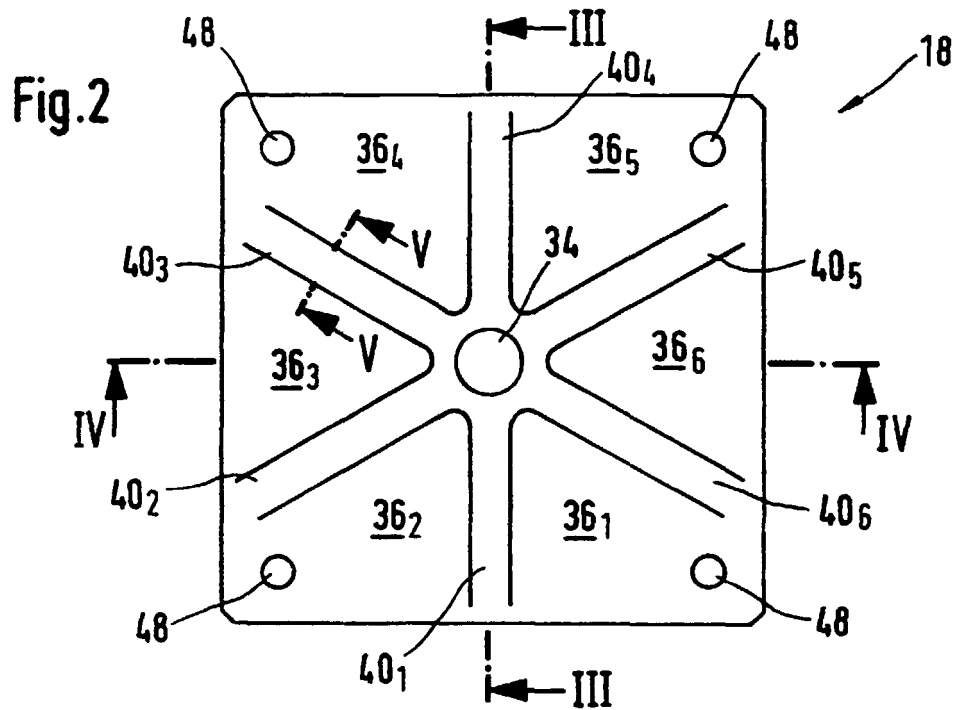


Fig.1





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EUROPEAN SEARCH REPORT

Application Number
EP 99 11 5273

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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