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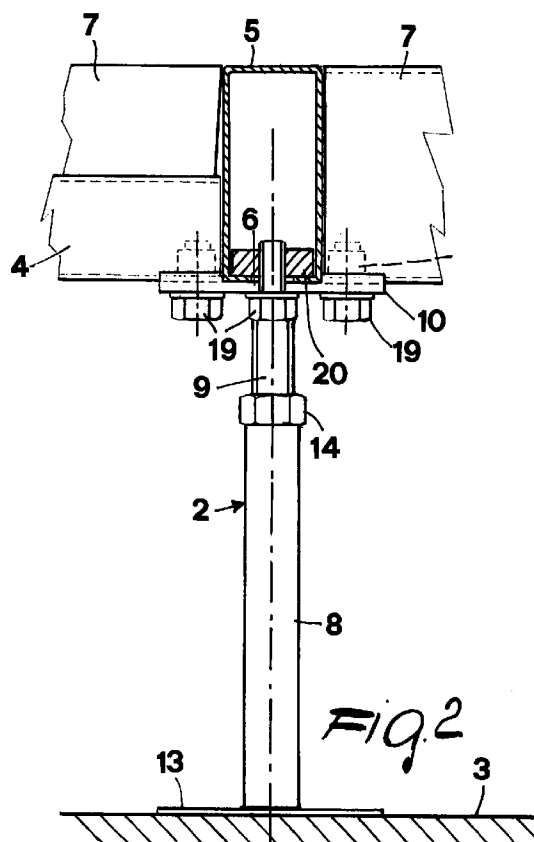
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(54) **Supporting structure particularly for modular flooring elements**

(57) A supporting structure (1) comprising a plurality of supporting posts (2) for resting on a resting surface (3), a plurality of tubular stringers (4) and cross-members (5) with a longitudinal slot (6), which form a supporting frame for a plurality of modular flooring elements (7), each post (2) comprising a base trunk (8), a stem (9) which can be telescopically coupled to the trunk, an upper plate (10) which is supported by the stem (9) and has four crossing recesses provided with a respective notch, and means for mutually fixing the recess of the plate and a respective tubular stringer or cross-member.



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Description

The present invention relates to a supporting structure particularly but not exclusively for modular flooring elements.

It is known that in recent times there is an increased use of raised floors constituted by a plurality of modular plate-like elements made of various flooring materials, such as slabs or crushed-marble tiles made of natural and synthetic stone-like materials, supported at a variable height from a bottom surface, usually made of concrete, by a metal frame which is in turn supported by a plurality of spacer posts which rest on the bottom surface.

The aim of the present invention is to provide an improved supporting structure for modular flooring elements which allows quick installation and ensures high stability and reliability over time.

Within the scope of this aim, an object of the present invention is to provide a new coupling node in the supporting frame which ensures the provision of stable and safe connections among a plurality of frame elements.

Another object of the present invention is to provide a supporting structure which can be manufactured at a very low cost.

This aim, these objects and others which will become apparent hereinafter are achieved by a supporting structure, formed by a plurality of supporting posts for resting on a resting surface, a plurality of tubular stringers and cross-members with a longitudinal slot, which form a supporting frame for a plurality of modular flooring plates or elements, and is characterized in that each post comprises a base trunk, a stem which can be telescopically coupled to said trunk, an upper plate which is supported by said stem and has four crossing recesses provided with a respective notch, and means for mutually fixing the recess of the plate and a respective tubular stringer or cross-member.

Advantageously, each base trunk comprises a base sleeve in which one end is rigidly coupled to a plate or pedestal for resting on the ground or on the floor and the other end is affected by a threaded nut in order to allow to adjust and set the height of the post to the chosen level.

The present invention is described in greater detail hereinafter with reference to the accompanying drawings, wherein:

figure 1 is a front elevation view, with parts shown in cross-section, of a portion of a supporting structure according to the present invention at a supporting post;

figure 2 is a front elevation view, similar to figure 1, of a second embodiment at the region for joining a raised floor to the supporting frame of an overlying machine;

figure 3 is an enlarged-scale plan view, with some

parts shown in cross-section, of the structure of figure 1;

figure 4 is a front elevation view, with some parts shown in cross-section, of a supporting base for a base trunk or telescopic post;

figures 5, 6 and 7 are respectively a plan view, a side view and a front view of an upper plate;

figure 8 is a front elevation view of an upper plate or head with four recesses, rigidly coupled to a threaded stem;

figure 9 is a bottom view of the plate of figure 8;

figures 10 and 11 are front views of a C-shaped profiled element having respectively a rectangular hollow and a square hollow and constituting the horizontal frame of the structure;

figure 12 is a partial plan view of a wing nut; and figure 13 is a sectional view, taken along the plane XIII-XIII of figure 12.

In the various figures of the accompanying drawings, identical or similar parts or components have been designated by the same reference numerals.

With reference to the above figures, a supporting structure 1 according to the present invention is formed by a plurality of supporting posts 2 for resting on a resting surface 3, by a plurality of stringers 4 and tubular cross-members 5 with a longitudinal slot 6 which form a supporting frame for a plurality of modular flooring elements 7.

Each supporting post 2 comprises a trunk 8, a stem 9 which can be telescopically coupled to the trunk or post 8, for example by screwing therein or by simple insertion with adjustment of the position by means of a nut 14, and an upper plate or head 10 with four crossing recesses 11 provided with a respective notch or slot 12. The trunk 8 is formed by a sleeve the lower end whereof is fixed, for example welded, to a plate or pedestal 13 for resting on the ground or on the floor 3, while its upper end constitutes the resting and contrast element for the nut 14 that is normally screwed on the threaded stem 9.

The upper plate or head 10 abuts against the stem 9 and is fixed below it, for example welded (figure 8), while in an upward region it has two pairs of aligned shoulders 15 and 16 which delimit, between them, the slotted recesses 11 and form the seat for accommodating the tubular profiled elements 4 or 5.

The plate 10 is meant to constitute a resting and locking element for the ends of two stringers 4 and of one or two cross-members 5. The asymmetrical shape of the plate 10 allows to easily form perimetric structure regions, for example at the area of contact with walls, where the system of stringers and cross-members must form a T.

The stringers and the cross-members can be constituted by a same C-shaped profiled element (figure 2) with a longitudinal slot 6 (figure 1) or by profiled elements having a different cross-section, for example a rectangular or square one (figure 2).

The means for removably mutually fixing the plate 10 and the tubular stringer or cross-member 4, 5 may be provided by using bolts 19 the head whereof abuts against the lower face of the plate 10 and the threaded stem whereof passes through a respective notch 12 to screw into a respective rhomboid nut 20 (figures 1 to 3, 12 and 13) inserted beforehand through the slot 6 into the overlying stringer or cross-member. Each nut 20, during use, engages against the inside walls of the respective profiled element (figure 3), so that it is possible to quickly and safely tighten the bolts 19 by acting only on the head of said bolts.

A structure is thus obtained which is resistant not only to vertical stresses but also to horizontal stresses, such as for example the dynamic stresses produced by moving vehicles.

The above-described supporting structure is susceptible of numerous constructive modifications and variations within the protective scope defined by the appended claims.

The materials and the dimensions may be various according to requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A supporting structure, comprising a plurality of supporting posts for resting on a resting surface, a plurality of tubular stringers and cross-members with a longitudinal slot, which form a supporting frame for a plurality of modular flooring elements, characterized in that each post comprises a base trunk, a stem which can be telescopically coupled to said trunk, an upper plate which is supported by said stem and has four crossing recesses provided with a respective notch, and means for mutually fixing the recess of the plate and a respective tubular stringer or cross-member.
2. A supporting structure according to claim 1, characterized in that each footing or post comprises a base sleeve in which one end is rigidly coupled to a ground or floor resting pedestal and the other end is configured as a support for a nut which is engaged on said threaded stem.
3. A supporting structure according to claim 1, characterized in that said upper plate has a plurality of crossing recesses, each whereof has a respective notch or slot.
4. A supporting structure according to claim 1, charac-

terized in that said upper plate is fixed at the top of said stem.

5. A supporting structure according to claim 1, characterized in that said upper plate comprises two pairs of shoulders which delimit, between them, slotted recesses for accommodating said tubular stringers and cross-members.
6. A supporting structure according to claim 5, characterized in that said upper plate has a substantially rectangular configuration in plan view.
7. A supporting structure according to claim 6, characterized in that a recess located at a longer side of the plate has an extension in order to increase the resting surface for the tubular stringers and cross-members.

