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(54) **Flat support means made of ceramic material**

(57) Support means obtained by casting ceramic material comprises quadrangular plate means (2) and

border toroidal means (3), said toroidal means (3) being arranged on at least three sides of said quadrangular plate means (2).

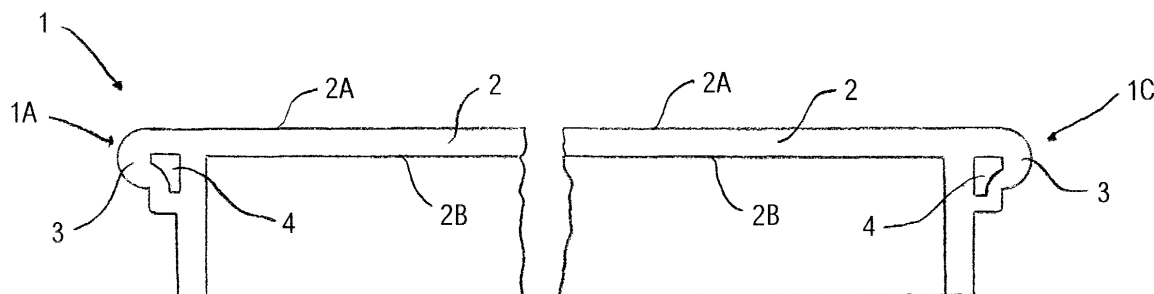


Fig. 2

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## Description

**[0001]** The invention relates to support means made of ceramic material.

**[0002]** Decorating elements made of ceramic material are known suitable for obtaining particular finish at the inside or the outside of a building. These decorating elements are produced with the same materials and embellished with the same decorations as the ceramic tiles constituting the floor or the coating of the building to which the elements have to be matched.

**[0003]** In particular ceramic steps are known arranged for manufacturing staircase.

**[0004]** A first type of known steps comprises a tread board realised with a ceramic tile, similar to those used for the floor, to which decorating toric elements, so-called "torelli", produced and decorated apart, are fixed on one or more sides.

**[0005]** A drawback of the steps of this type is, first of all, that a joint is present between the tread board and the "torello" which confers a very unaesthetic character to the product.

**[0006]** Furthermore, since the tread board and the "torello" were not subjected to the same manufacturing process, differences in the colour tone may arise therebetween.

**[0007]** A second type of known steps comprises steps in which the tread board and the "torelli" are produced in a same piece by pressing or drawing.

**[0008]** A drawback of the steps of this type is that the above-mentioned "torelli" may be obtained only on one or two adjacent sides of the step.

**[0009]** Furthermore handrails and wall covers are known, having toric decorating elements on three sides, which are obtained by producing first of all, by drawing, a piece having toric decorating elements on two opposing sides, and eventually by producing a further toric decorating element by pressing a border region of the step which is still in a plastic or semi-plastic state.

**[0010]** Using the drawing process just described, however, it is possible to obtain only pieces having very limited size; pieces having large size obtained by drawing, in fact, would show twisting of the plate constituting the tread board with consequent unacceptable lack of planarity.

**[0011]** All that depends on the fact that the "torello" may be produced only as a solid part, which makes difficult maintaining the planarity during firing.

**[0012]** An object of the present invention is to improve the aesthetical properties of the known ceramic supports having toric edge.

**[0013]** Another object of the present invention is to obtain ceramic supports of any size provided with toric elements on a plurality of sides.

**[0014]** According to the present invention, support means is provided obtained by casting ceramic material, comprising quadrangular plate means and toroidal border means, characterized in that said toroidal means is

arranged on at least three sides of said quadrangular plate means.

**[0015]** Advantageously, since the ceramic material in a semi-liquid state is cast into moulds, the support means may have also a quite large size without problems of lack of planarity and dimensional unevennesses between one piece and the other occurring.

**[0016]** Furthermore, due to casting technique and the equipment used for carrying out that technique, which are very similar to those used for producing sanitary articles, a uniform thickness is maintained both for the portion forming the plate and the sides with toric decoration.

**[0017]** Advantageously, furthermore, the above-mentioned support means may be made of porcelain stoneware, therefore products are obtained provided with good mechanical properties and low water absorption, which may be used for exterior decoration.

**[0018]** Owing to the present invention, for example, steps for staircase or windowsill are obtained which, once decorated, may be directly installed, since their dimensions comply with the building structure to which they have to be fixed. In this manner a remarkable aesthetic quality is obtained since there is no joint between the various portions constituting the tread board and between the above-mentioned portions of tread board and the respective toroidal elements.

**[0019]** In a quite common case in which a staircase extends along a wall, the above-mentioned steps may be cut so as to remove one of the transversal toroidal elements and then installed by fixing the steps to the staircase through mortar or glues.

**[0020]** Advantageously the above-mentioned support means may be decorated by attaching decals thereto. In such a manner, products are obtained provided with a high aesthetic quality since a perfect definition of the drawing is obtained also in the toric elements which are difficult to decorate with usual techniques such as, for example, silk-screen printing.

**[0021]** By using decals, furthermore, support means is obtained which, once decorated, is equal to analogous products obtained from natural stones.

**[0022]** The invention can be better understood and carried out with reference to the attached drawings, which show some exemplifying and not restrictive embodiments thereof, in which:

Figure 1 is a partially broken plan view of support means according to the invention, used as steps;

Figure 2 is a front view of Figure 1;

Figure 3 is a plan view like Figure 1, but not partially broken;

Figure 4 is a partially sectioned plan view of support means according to the invention used as windowsills in a preferred assembly version;

Figure 5 is a view like Figure 4, in another assembly version.

**[0023]** With reference to Figures 1 to 3, a ceramic step

1 is shown comprising a substantially quadrangular tread board 2 having an upper face 2A suitable for being decorated and a lower face 2B suitable for constituting a fixing region to the building structure of a staircase to which the above-mentioned step 1 has to be fixed.

[0024] The step 1 is furthermore provided on three sides, indicated respectively with 1A, 1B and 1C, with toroidal elements 3 vertically departing from a lower surface 2B thereof.

[0025] Since the step 1 is obtained by casting ceramic material into a mould, the tread board 2 is obtained in only one piece and therefore it has no unaesthetic joints.

[0026] Furthermore, due to the used casting technique, similar to the technique used for obtaining sanitary articles, steps 1 are obtained whose toroidal elements 3 show holes 4 realised at their inside and extending along their full length so that the above mentioned toroidal elements 3 result hollow and provided with a thickness substantially equal to the tread board 2.

[0027] This uniform thickness allows to substantially remove the distortion of the piece typical of the subsequent firing step. During fitting of a staircase extending with one of its side against a wall, the step 1 may be cut at a transversal axis X, if the wall is arranged on the left side of the staircase with respect to the climbing direction of the steps, or a transversal axis Y, if the wall is arranged on the right side of the staircase with respect to the climbing direction of the steps.

[0028] With reference to the Figures 4 and 5, a windowsill 5 is shown, obtained from support means of ceramic material according to the invention, which has to be fixed to the building structure 6 of the window opening.

[0029] As shown in Figure 4, a laying solution is carried out first of all by carrying out a longitudinal cut along the line 10 so as to cause the windowsill 5 to protrude from the building structure 6 for a desired amount. Then, by means of a flexible tool, a first pair of longitudinal cuts 7 and a second pair of transversal cuts 8 are carried out on the window-sill 5, so as to perfectly adjust the window-sill 5 to the dimensions of the building structure 6, arranged for receiving the window-sill 5.

[0030] As shown in the Figure 5, in a further laying solution the window-sill 5 is cut along a longitudinal line 10 in the manner and with the purposes previously described and then is fixed to the building structure 6 of a window by dawning a pair of sections 9 belonging to toroidal elements 3 transversally arranged inside the above-mentioned building structure 6.

2. Support means according to claim 1, wherein internally to said toroidal means (3) holes (4) are obtained arranged so that the thickness of said toroidal means (3) is substantially equal to the thickness of said plate means (2).

3. Support means according to claim 1, or 2, wherein said plate means (2) comprises an upper face (2A) arranged for being decorated and a lower face (2B) arranged for constituting a fixing region with a building structure (6) to which said support means (1, 5) has to be fixed.

4. Support means according to claim 3, wherein on said upper face (2A) a decal is applied extending to said toroidal means (3).

5. Support means according to claim 4, wherein said decal reproduces decorating patterns typical of natural stones.

6. Support means according to one of the preceding claims wherein said ceramic material is porcelain stoneware.

## Claims

1. Support means obtained by casting ceramic material, comprising quadrangular plate means (2) and toroidal border means (3), **characterized in that** said toroidal means (3) is arranged on at least three sides of said quadrangular plate means (2).

