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(54) FLEXIBLE BRICK PLATE WITH A MESH AND PROCESS FOR MANUFACTURING A MESH FOR SAID FLEXIBLE PLATE

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PLAQUE DE BRIQUE SOUPLE AVEC TREILLIS ET PROCÉDÉ POUR FABRIQUER UN TREILLIS POUR LADITE PLAQUE SOUPLE

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Description

[0001] The present invention relates to a flexible brick plate with a mesh and to a process for manufacturing said mesh for said flexible brick plate.

Background of the invention

[0002] Flexible brick plates comprising a mesh of metal rods forming a framework with gaps wherein said bricks are arranged are known in the state of the art.

[0003] Said flexible brick plates are suitable for building architectural elements of apparent brick, such as dome-shaped roofs, floors or walls, disposing the flexible brick plate with one of its sides against formwork and applying a binding agent (concrete or mortar) on the other side thereof. When the binding agent has set, the formwork is removed and the bricks are exposed on the first side of the architectural element thus obtained. The same flexible plate is also suitable for floor or wall surfaces, without need for a binding agent.

[0004] Patent EP 2154302 and Spanish patent application 201030013 disclose a mesh for a flexible brick plate such as that described which includes a plurality of support rods interwoven with a plurality of positioning rods, forming the framework that defines the gaps where the bricks are arranged. Between every two support rods the mesh includes a reinforcing rod interwoven with the positioning rods, and both the reinforcing rods and the support and positioning rods are corrugated in order to immobilise the intersection points formed where the ridges and troughs of the waves overlap. In order to arrange the bricks, the support rods are moved and subsequently inserted into slots formed in the edges of said bricks on returning to their initial position.

[0005] In order to market the aforementioned flexible brick plates it is essential to be able to guarantee formats of standard dimensions that will give the plate modularity and allow it to be installed in a faster and easier manner.

[0006] However, it has been observed that the meshes of the aforementioned patent applications do not allow plates of standard width to be obtained, such as for example plates exactly 600 mm, 900 mm, 1,000 mm or 1,200 mm in width, as the width of the plate is determined by the corrugation pitches established by the support rods, which are established in accordance with the distance that must be maintained between the support rods in order to be inserted into the bricks.

[0007] In order to partially solve this problem, a corrugation pitch length will be dimensioned so as to allow inclusion of the necessary number of waves to maintain the distance between the support rods and, at the same time, move toward a standard width. However, in practice, this is not possible as the length of the corrugation pitches cannot be accurately guaranteed due to different factors such as rod hardness and thickness, manufacturing speed, etc.

[0008] Another problem with the meshes of the state of the art resides in the fact that they do not absorb the differences in brick size due to the baking process itself or the type of material used therein, which results in loose and falling bricks due to lack of fixation thereof.

Description of the invention

[0009] The objective of the present invention is to resolve the aforementioned drawbacks by developing a mesh and a flexible brick plate with said mesh which has the advantage of enabling plates of standard width to be obtained without losing robustness and firmness.

[0010] In accordance with this objective, according to a first aspect, the present invention provides a flexible brick plate comprising a mesh with a plurality of support rods that are inserted into slots formed in said bricks, said support rods being interwoven with a plurality of positioning rods of said bricks, said mesh including a reinforcing rod interwoven with said positioning rods between every two support rods, said support rods, reinforcing rods and positioning rods having corrugated sections and said mesh forming a framework with gaps wherein said bricks are arranged.

[0011] The plate and the mesh are characterised in that

a. the distance between every two reinforcing rods (3) being a specific predetermined distance (d1) corresponding to the value of the nominal size of the bricks (6) and corresponding to the distance (d1) between points (P1,P2) at the intersections of said positioning rods (4) with said reinforcing rods (3), in that;

b. the value of the width of the mesh is a specific standard value (A) corresponding to the number and the nominal size (d1) of the bricks, said nominal size corresponding in turn to the distance (d1) between every two reinforcing rods (3) of the mesh,. in that;

c. the distance between any support rod (2) and its adjacent reinforcing rod (3) corresponds with a single length (l) of a corrugation pitch of the positioning rods (4); and where

d. the length (l) of the corrugation pitches of the positioning rods (4) at the intersections of said positioning rods (4) with said reinforcing rods (3) is at least a minimum length (lmin) determined using the mathematical formula:

$$\text{Minimum length } (lmin) = \frac{(d1-(d2+\phi)}{2}$$

where:

- *"lmin"* is the length of the corrugation pitches or the distance between a ridge and a trough adjacent to said ridge or vice versa;
- *"dl"* is the distance between points (P1, P2) for overlapping reinforcing rods (3) or nominal size of the brick (6);
- "d2' is the distance between the slots 6a of a single brick 6; and
- "ø" is the diameter of a support rod (2).

[0012] In accordance with this objective, the present invention provides a process for manufacturing a mesh for a flexible brick plate, which comprises the stages of:

a) determining a standard value for the width (A) of the plate in question based on the number and nominal size of the bricks that must be included in said plate; wherein said nominal size of the bricks corresponds to the distance (d1) between every two reinforcing rods of the mesh;
b) marking a plurality of intersection points (P1, P2) of the reinforcing rods (3) on the positioning rods (4), the distance (d1) between points (P1, P2) corresponding to the value of the nominal size of each brick (6) to obtain the aforementioned standard width (A);
c) subsequently, corrugating a plurality of support (2), reinforcing (3) and positioning rods (4) in at least a plurality of sections, carrying out the corrugation of the positioning rods (4) at least in those sections that include said points (P1, P2) for intersecting the reinforcing rods (3), said corrugation being carried out defining a specific minimum corrugation pitch length (l) determined using a mathematic formula;

$$\text{Minimum length } (lmin) = \frac{(d1-(d2+\phi)}{2}$$

where:

- *"lmin"* is the length of the corrugation pitches or the distance between a ridge and a trough adjacent to said ridge or vice versa;
- *"dl"* is the distance between points (P1, P2) for intersecting reinforcing rods or nominal size of the brick;
- *"d2"* is the distance between the slots of a single brick; and
- "ø" is the diameter of a support rod

And said process further comprising the step of;
d) overlapping and interweaving a group of pre-corrugated support rods (2) and reinforcing rods (3) with a group of pre-corrugated positioning rods (4), forming a framework (5) with gaps in which to arrange bricks (6), wherein the intersection points of said rods (2, 3, 4) are disposed in the corrugated sections, the reinforcing rods (3) being interwoven at the points (P1, P2) of the positioning rods (4) separated by the distance (d1).

[0013] The mesh, plate and process of the present invention has the advantage of allowing the construction of a plate of standard width (A), as said width is not conditioned by the corrugation pitches of the positioning rods that fix the support rods, but rather is a width (A) that is established prior to the construction of the plate, based on the number and nominal size of the bricks that must be included in said plate.

[0014] In fact, the author of the present invention has observed that it is possible to mark and fix the distance between the fixation points (P1, P2) of the reinforcing rods at a value (d1) corresponding to the nominal size of each brick in order to obtain the aforementioned standard width (A), whereupon the pitches that fix the support rods can be subsequently dimensioned and corrugated, taking the intersection points (P1, P2) of the reinforcing rods as a reference.

[0015] Another advantage of the plate and process being claimed resides in the fact that, on carrying out the corrugation of the positioning rods taking the intersection points (P1, P2) of the reinforcing rods as a reference, the position of the pitches that fixes the support rods is more accurate and, consequently, also the fixation of the bricks.

[0016] The process, in stage c), corrugation of the sections of the positioning rods that include the points (P1, P2) for overlapping the reinforcing rods is carried out defining a length (l) of the corrugation pitches, which is determined based on the difference between the distance (d1) between said points (P1, P2) and the distance (d2) between the slots of a single brick.

[0017] In this manner, a mesh is obtained wherein the length (l) of the corrugation pitches of the positioning rods at their intersection points with the reinforcing and support rods is a predetermined distance based on the difference between the distance (d1) between the reinforcing and support rods and the distance (d2) between the slots of a single brick, in order to ensure the centering and fixation of said brick to the support rods.

[0018] Consequently, as opposed to what occurs in the meshes of the state of the art, the length (l) of the corrugation pitches of the positioning rods is a specific dimensioned length, independent of the width of the plate, to ensure fixation of the bricks.

[0019] The length (l) of the corrugation pitches of the positioning rods that include the points (P1, P2) must at least include a minimum length (*lmin*) which is determined using the mathematical formula:

$$\text{Minimum length } (lmin) = \frac{(d1-(d2+\phi)}{2}$$

where:

- *"lmin"* is the length of the corrugation pitches or the distance between a ridge and a trough adjacent to said ridge or vice versa;
- *"dl"* is the distance between points (P1, P2) for intersecting reinforcing rods or nominal size of the brick;
- *"d2"* is the distance between the slots of a single brick; and
- "*ø*" is the diameter of a support rod.

[0020] According to the claimed process, in stage d) the reinforcing rods are interwoven in troughs and ridges of the positioning rods adjacent to the troughs and ridges wherein the support rods are interwoven. In this manner, a mesh is obtained wherein the distance between any support rod and its adjacent reinforcing rod is determined by a single length of a corrugation pitch of the positioning rods.

[0021] This embodiment has the advantage that, as the support rods are separated by a single length of a corrugation pitch of the reinforcing rods, the adjacent reinforcing rods prevent said support rods from moving, whereupon the wave itself has a spring effect on the support rods, forcing their position in the interior of the slot made in the brick. Consequently, the wavelength that separates the reinforcing and support rods can be dimensioned with a value higher than the afore-mentioned minimum value in order to absorb the differences in size of the bricks, while ensuring that there is no risk of these falling. Said differences in the size of the bricks may be due to the baking process itself, type of material used, etc.

[0022] Therefore, in the mesh and plate of the present invention, the length (l) of the corrugation pitches of the positioning rods at their intersection points with the reinforcing and support rods may be a distance comprised between 10 mm and 20 mm for support rod diameters of more than 1.5 mm, or a distance comprised between 3 mm and 13 mm, for support rod diameters of less than 1.5 mm.

[0023] Preferably, in stage c) of the mesh and plate manufacturing process, corrugation of the positioning rod sections is carried out corrugating said rods discontinuously, in such a manner that said rods comprise non-corrugated sections interspersed between the corrugated sections. In this manner a mesh is obtained wherein the positioning rods comprise non-corrugated sections interspersed between the corrugated sections.

[0024] It was observed that, in this manner, the mesh and plate is much easier to manufacture.

[0025] Also preferably, the support and reinforcing rods form the mesh warp and said positioning rods form the weft,

[0026] Advantageously, the mesh of the plate is a mesh of the braided type and said mesh is made, preferably, using metal rods, advantageously, stainless steel rods.

[0027] In the present invention:

Corrugation pitch length shall be understood to be the distance (1) between a ridge and a trough adjacent to said ridge or vice versa.

[0028] Nominal size of the bricks shall be understood to be the size used for the purposes of general identification of the type of brick which is larger in size than the real measurable size, preferably, between 1 cm or 2 cm larger than the real size of the brick.

[0029] Brick shall be understood to be the construction element for building, for example, surfaces (road surfaces, façades, rooftops, etc.) and structures (dome-shaped roofs, catenaries, panels, etc.). This shall preferably be understood to be a baked brick ceramic element, although it may also be an element manufactured from other materials such as stainless steel, plastic, wood, aluminium, etc.

Brief description of the drawings

[0030] In order to help better understand the foregoing, drawings are included wherein, schematically and only by way of non-limiting example, an embodiment is represented.

[0031] In said drawings,

Figure 1 shows a perspective view of the embodiment of the mesh of the present invention.
Figure 2 shows a detail of the mesh of figure 1.
Figure 3 shows a detail of the positioning rod of the mesh of figure 1.
Figure 4 shows a ceramic brick for building a flexible brick plate using the mesh of figure 1.
Figure 5 shows a detail of a flexible ceramic brick plate that includes the mesh of figure 1.

Description of a preferred embodiment

[0032] A preferred embodiment of the mesh 1 of the present invention made using metal rods, preferably stainless steel rods, is described below.

[0033] The mesh 1 being claimed comprises a plurality of support rods 2 and reinforcing rods 3, interwoven with a plurality of positioning rods 4, forming a framework with gaps 5 wherein bricks 6 are arranged. A reinforcing rod 3 has been disposed between every two support rods 2, whereupon the distance between any support rod 2 and its adjacent reinforcing rod 3 is determined by a single length of a corrugation pitch of the positioning rods 4.

[0034] In the embodiment being described, the support rods 2 and reinforcing rods 3 constitute the mesh 1 warp and the positioning rods 4 constitute the mesh 1 weft. Additionally, both the support 2 and reinforcing rods 3 and the positioning rods 4 have corrugated intersections to immobilise the intersection points formed where the ridges and troughs overlap.

[0035] As mentioned in the description of the invention, the plate and mesh being claimed are characterised in that the distance between every two reinforcing rods 3 is a predetermined distance (d1) in accordance with the width of the plate, the value of said width being a standard value (A) determined based on the number and nominal size of the bricks that must be included in said plate (see figures 1 and 2).

[0036] Additionally, the mesh being claimed has the peculiarity that, as opposed to the meshes of the state of the art, the length (l) of the positioning rod corrugation pitches is dimensioned specifically, based on the difference between the distance (d1) between reinforcing rods 3 and the distance (d2) between the slots 6a of a single brick 6, in order to ensure centering and fixation of the brick 6 (see figures 3 and 4). This length (l) value shall include at least the minimum length (lmin) determined using the mathematical formula:

$$\text{Minimum length } (lmin) = \frac{(d1-(d2+\phi)}{2}$$

where:

- *"lmin"* is the length of the corrugation pitches or the distance between a ridge and a trough adjacent to said ridge or vice versa;
- *"dl"* is the distance between points (P1, P2) for intersecting reinforcing rods 3 or nominal size of the brick 6;
- *"d2"* is the distance between the slots 6a of a single brick 6; and
- "*ø*" is the diameter of a support rod 2.

[0037] In order to manufacture the mesh 1 of the present invention, the standard value (A) of the width of the plate in question must firstly be determined based on the number and nominal value of the bricks 6 that must be included in said plate. Thus, for example, if we wish to include four 250 mm ceramic bricks 6 in the plate, the standard width (A) of said plate must be 1,000 mm.

[0038] Once the standard width (A) has been determined, a plurality of points P1, P2 are marked on the positioning rods 4 for intersecting the reinforcing rods 3, establishing a distance (d1) between every two points P1, P2 that corresponds to the value of the nominal size of each brick 6 to obtain the aforementioned standard width (A). In the described example, the distance (d1) between every two points P1, P2 is 250 mm. In this case, the real measurable size corresponding to the brick 6 is 237 mm.

[0039] Once the points P1, P2 for intersecting the reinforcing rods 3 have been marked, the positioning rods 4 are corrugated discontinuously, ensuring that the corrugated sections include the aforementioned points P1, P2 and using a wave pitch length (l) determined based on the difference between the distance (d1) between the reinforcing rods 3 and the distance (d2) between the slots 6a of a single brick 6, according to the aforementioned mathematical formula.

[0040] In the example being described, for a distance (d1) of 250 mm between points P1, P2, a distance (d2) of 219 mm between the slots 6a of a single brick 6 and a diameter (ø) of the support rod 2 of 2 mm, the minimum length (lmin) of the wave pitch of the positioning rods 4 to ensure centering and fixation of the bricks is 14.5 mm.

[0041] Once the positioning rods 4 have been corrugated, said rods 4 are interwoven with a plurality of corrugated support rods 2 and reinforcing rods 3, whereupon the intersection points of all the rods 2, 3, 4 remain in the corrugated sections. In this operation, it is ensured that the reinforcing rods 3 are interwoven at the points P1, P2 of the positioning rods 4 in order to guarantee that the distance between every two reinforcing rods 3 is the predetermined distance (d1) corresponding to the nominal size of the brick 6 that ensures the standard width (A).

[0042] Likewise, on interweaving the reinforcing rods 3, it is ensured that these are disposed in troughs and ridges of the positioning rods 4 that are adjacent to the troughs and ridges wherein the support rods 2 are interwoven. This will guarantee that the distance between any support rod 2 and its adjacent reinforcing rod 3 is determined by a single length of a corrugation pitch of the positioning rods 4. As mentioned earlier, this detail enables fixation of the support rods 2 in the slots 6a of the brick 6 (spring effect of the wave forced by the reinforcing rods) while absorbing the differences in brick 6 size.

[0043] The mesh 1 obtained by means of the process being claimed results in a plate of standard width (A) that is easier to manufacture. Additionally, the mesh 1 allows the bricks 6 to be securely fixed, as the corrugation pitch length established by the support rods 2 is dimensioned specifically, regardless of plate width, in order to ensure centering and fixation of the bricks 6 in the slots 6a with the support rods 2.

[0044] Notwithstanding the foregoing and having represented a specific embodiment of the present invention, it is evident that a person skilled in the art can introduce variants and modifications or substitute the details for other, technically equivalent ones without detracting from the sphere of protection defined by the claims set out below.

[0045] For example, although reference has been made in the present specification to a mesh 1 for manufacturing a ceramic brick 6 plate, the same mesh may be used to manufacture a non-ceramic brick plate, such as for example plastic or metal bricks or parts. However, these parts must equally include slots 6a for inserting the metal rods. Likewise, although reference has been made to an embodiment of the mesh wherein the nominal size of the bricks 6 that must be included in said plate is identical, the same mesh could be designed to include bricks of different nominal sizes. In this case, the distance (d1) between the intersection points P1, P2 of the reinforcing rods 3 to obtain the standard width (A) would not be uniform, but rather would vary depending on the specific nominal size of the brick 6 disposed between these reinforcing rods 3.

Claims

1. Flexible brick (6) plate comprising a mesh (1) with plurality of support rods (2) that are inserted into slots (6a) formed in the bricks (6) of said flexible brick plate, said support rods (2) being interwoven with a plurality of positioning rods (4) of said bricks (6), wherein said mesh (1) includes a reinforcing rod (3) between every two support rods (2) interwoven with said positioning rods (4), said support rods (2), reinforcing rods (3) and positioning rods (4) having corrugated sections, and said mesh forming a framework with gaps (5) wherein said bricks (6) are arranged, **characterised in that**;

a. the distance between every two reinforcing rods (3) being a specific predetermined distance (d1) corresponding to the value of the nominal size of the bricks (6) and corresponding to the distance (d1) between points (P1,P2) at the intersections of said positioning rods (4) with said reinforcing rods (3);
b. the value of the width of the mesh is a specific standard value (A) corresponding to the number and the nominal size (d1) of the bricks, said nominal size corresponding in turn to the distance (d1) between every two reinforcing rods (3) of the mesh;
c. the distance between any support rod (2) and its adjacent reinforcing rod (3) corresponds with a single length (l) of a corrugation pitch of the positioning rods (4); where
d. the length (l) of the corrugation pitches of the positioning at the intersections of said positioning rods (4) with said reinforcing rods (3) is at least a minimum length (lmin) determined using the mathematical formula:

$$\text{Minimum length } (lmin) = \frac{(d1-(d2+\phi)}{2}$$

where:

- *"lmin"* is the length of the corrugation pitches or the distance between a ridge and a trough adjacent to

said ridge or vice versa;
- *"dl"* is the distance between points (P1, P2) for overlapping reinforcing rods (3) or nominal size of the brick (6);
- *"d2"* is the distance between the slots (6a) of a single brick (6); and
- "*ø*" is the diameter of a support rod (2).

2. Flexible brick plate, according to claim 1, wherein the length (l) of the corrugation pitches of the positioning rods (4) at the intersection points thereof with the reinforcing rods (3) and support rods (2) is a distance comprised between 10 mm and 20 mm for support rod (2) diameters of more than 1.5 mm, or a distance comprised between 3 mm and 13 mm for support rod (2) diameters of less than 1.5 mm.

3. Flexible brick plate, according to any of the preceding claims, wherein the positioning rods (4) comprise non-corrugated sections interspersed between the corrugated sections.

4. Flexible brick plate, according to any of the preceding claims, wherein said support rods (2) and reinforcing rods (3) form the mesh warp and said positioning rods (4) form the mesh weft.

5. Process for manufacturing a mesh (1) for a flexible brick plate (6) according to any of the preceding claims, which comprises the stages of:

a) determining a standard value for the width (A) of the plate in question based on the number and nominal size of the bricks (6) that must be included in said plate wherein said nominal size of the bricks corresponds to the distance (d1) between every two reinforcing rods (3) of the mesh;
b) marking a plurality of intersection points (P1, P2) of the reinforcing rods (3) on the positioning rods (4), the distance (d1) between points (P1, P2) corresponding to the value of the nominal size of each brick (6) to obtain the aforementioned standard width (A);
c) subsequently, corrugating a plurality of support (2), reinforcing (3) and positioning rods (4) in at least a plurality of sections, carrying out the corrugation of the positioning rods (4) at least in those sections that include said points (P1, P2) for intersecting the reinforcing rods (3), the length of the corrugation pitches of said positioning rods (4) at the intersections with said reinforcing rods (3) being at least a minimum length (lmin) determined using the mathematical formula:

$$\text{Minimum length } (lmin) = \frac{(d1-(d2+\phi)}{2}$$

where:

- *"lmin"* is the length of the corrugation pitches or the distance between a ridge and a trough adjacent to said ridge or vice versa;
- *"dl"* is the distance between points (P1, P2) for overlapping reinforcing rods (3) or nominal size of the brick (6);
- *"d2"* is the distance between the slots (6a) of a single brick (6); and
- "*ø*" is the diameter of a support rod (2); and said process further comprising the step of

d) overlapping and interweaving a group of pre-corrugated support rods (2) and reinforcing rods (3) with a group of pre-corrugated positioning rods (4), forming a framework (5) with gaps in which said bricks (6) are arranged, wherein the intersection points of said rods (2, 3, 4) are disposed in the corrugated sections, and wherein the reinforcing rods (3) are interwoven at the points (P1, P2) of the positioning rods (4) separated by the distance (d1).

6. Process, according to the preceding claim, wherein in stage d) the reinforcing rods (3) are interwoven with troughs and ridges of the positioning rods (4) which are adjacent to the troughs and ridges wherein the support rods (2) are interwoven.

7. Process, according to claim 5 or 6, wherein in stage c), corrugation of the positioning rod (4) sections is carried out corrugating said rods (4) discontinuously, in such a manner that said rods (4) comprise non-corrugated sections interspersed between corrugated sections.

Patentansprüche

1. Flexible Platte aus Ziegeln (6), die ein Geflecht (1) mit einer Mehrzahl von Haltestäben (2) aufweist, die in Schlitze (6a) eingefügt sind, die in den Ziegeln (6) der flexiblen Platte aus Ziegeln gebildet sind, wobei die Haltestäbe (2) mit einer Mehrzahl von Positionierungsstäben (4) der Ziegel (6) verflochten sind, wobei das Geflecht (1) einen Verstärkungsstab (3) zwischen jeweils zwei mit den Positionierungsstäben (4) verflochtenen Haltestäben (2) umfasst, wobei die Haltestäbe (2), die Verstärkungsstäbe (3) und die Positionierungsstäbe (4) geriffelte Abschnitte aufweisen und das Geflecht einen Rahmen mit Zwischenräumen (5) bildet, in denen die Ziegel (6) angeordnet sind, **dadurch gekennzeichnet, dass**:

   a. der Abstand zwischen jeweils zwei Verstärkungsstäben (3) ein spezifischer vorbestimmter Abstand (d1) ist, der dem Wert der Nenngröße der Ziegel (6) entspricht und dem Abstand (d1) zwischen Punkten (P1, P2) an den Schnittpunkten der Positionierungsstäbe (4) mit den Verstärkungsstäben (3) entspricht;
   b. der Wert der Breite des Geflechts ein spezifischer Standardwert (A) ist, der der Anzahl und der Nenngröße (d1) der Ziegel entspricht, wobei die Nenngröße wiederum dem Abstand (d1) zwischen jeweils zwei Verstärkungsstäben (3) des Geflechts entspricht;
   c. der Abstand zwischen jeglichem Haltestab (2) und seinem benachbarten Verstärkungsstab (3) einer einzelnen Länge (l) einer Riffelungsschrittweite der Positionierungsstäbe (4) entspricht; wobei
   d. die Länge (l) der Riffelungsschrittweiten der Positionierung an den Schnittpunkten der Positionierungsstäbe (4) mit den Verstärkungsstäben (3) zumindest eine Mindestlänge (lmin) ist, die unter Verwendung der folgenden mathematischen Formel bestimmt wird:

$$\text{Mindestlänge (lmin)} = \frac{(d1 - (d2 + \emptyset)}{2}$$

   wobei:

   - *"lmin"* die Länge der Riffelungsschrittweiten oder der Abstand zwischen einem Steg und einer Mulde neben dem Steg, oder umgekehrt, ist;
   - *"d1"* der Abstand zwischen Punkten (P1, P2) zum Überlappen von Verstärkungsstäben (3) oder eine Nenngröße des Ziegels (6) ist;
   - *"d2"* der Abstand zwischen den Schlitzen (6a) eines einzelnen Ziegels (6) ist; und
   - "*Ø*" der Durchmesser eines Haltestabs (2) ist.

2. Flexible Ziegelplatte gemäß Anspruch 1, bei der die Länge (l) der Riffelungsschrittweiten der Positionierungsstäbe (4) an den Schnittpunkten derselben mit den Verstärkungsstäben (3) und Haltestäben (2) ein Abstand ist, der für Durchmesser der Haltestäbe (2) von mehr als 1,5 mm zwischen 10 mm und 20 mm liegt, oder ein Abstand ist, der für Durchmesser der Haltestäbe (2) von weniger als 1,5 mm zwischen 3 mm und 13 mm liegt.

3. Flexible Ziegelplatte gemäß einem der vorhergehenden Ansprüche, bei der die Positionierungsstäbe (4) nichtgeriffelte Abschnitte aufweisen, die hier und da zwischen den geriffelten Abschnitten vorliegen.

4. Flexible Ziegelplatte gemäß einem der vorhergehenden Ansprüche, bei der die Haltestäbe (2) und die Verstärkungsstäbe (3) die Kette des Geflechts bilden und die Positionierungsstäbe (4) den Schuss des Geflechts bilden.

5. Verfahren zum Herstellen eines Geflechts (1) für eine flexible Ziegelplatte (6) gemäß einem der vorhergehenden Ansprüche, das folgende Stufen aufweist:

   a) Bestimmen eines Standardwertes für die Breite (A) der betreffenden Platte auf der Basis der Anzahl und der Nenngröße der Ziegel (6), die in der Platte enthalten sein müssen, wobei die Nenngröße der Ziegel dem Abstand (d1) zwischen jeweils zwei Verstärkungsstäben (3) des Geflechts entspricht;
   b) Markieren einer Mehrzahl von Schnittpunkten (P1, P2) der Verstärkungsstäbe (3) an den Positionierungsstäben (4), wobei der Abstand (d1) zwischen den Punkten (P1, P2) dem Wert der Nenngröße jedes Ziegels (6) entspricht, um die zuvor erwähnte Standardbreite (A) zu erhalten;
   c) anschließendes Riffeln einer Mehrzahl von Halte- (2), Verstärkungs- (3) und Positionierungsstäben (4) in zumindest einer Mehrzahl von Abschnitten, Ausführen der Riffelung der Positionierungsstäbe (4) zumindest in denjenigen Abschnitten, die die Punkte (P1, P2) zum Schneiden der Verstärkungsstäbe (3) umfassen, wobei

die Länge der Riffelungsschrittgrößen der Positionierungsstäbe (4) an den Schrittgrößen der Positionierungsstäbe (4) an den Schnittpunkten mit den Verstärkungsstäben (3) zumindest eine Mindestlänge (lmin) ist, die unter Verwendung der folgenden mathematischen Formel bestimmt wird:

$$\text{Mindestlänge (lmin)} = \frac{(d1-(d2+\emptyset)}{2}$$

wobei:

- *"lmin"* die Länge der Riffelungsschrittweiten oder der Abstand zwischen einem Steg und einer Mulde neben dem Steg, oder umgekehrt, ist;
- *"d1"* der Abstand zwischen Punkten (P1, P2) zum Überlappen von Verstärkungsstäben (3) oder eine Nenngröße des Ziegels (6) ist;
- *"d2"* der Abstand zwischen den Schlitzen (6a) eines einzelnen Ziegels (6) ist; und
- "*Ø*" der Durchmesser eines Haltestabs (2) ist;

und wobei das Verfahren ferner folgenden Schritt aufweist:

d) Überlappen und Verflechten einer Gruppe von vorab geriffelten Haltestäben (2) und Verstärkungsstäben (3) mit einer Gruppe von vorab geriffelten Positionierungsstäben (4), wodurch ein Rahmen (5) mit Zwischenräumen gebildet wird, in denen Ziegel (6) angeordnet sind, wobei die Schnittpunkte der Stäbe (2, 3, 4) in den geriffelten Abschnitten angeordnet sind und wobei die Verstärkungsstäbe (3) an den Punkten (P1, P2) der Positionierungsstäbe (4), die durch den Abstand (d1) getrennt sind, verflochten sind.

6. Verfahren gemäß dem vorhergehenden Anspruch,
bei dem in der Stufe d) die Verstärkungsstäbe (3) mit Mulden und Stegen der Positionierungsstäbe (4) verflochten sind, die neben den Mulden und Stegen liegen, in denen die Haltestäbe (2) verflochten sind.

7. Verfahren gemäß Anspruch 5 oder 6,
bei dem in der Stufe c) die Riffelung der Positionierungsstab(4)-Abschnitte durchgeführt wird, indem die Stäbe (4) derart diskontinuierlich geriffelt werden,
dass die Stäbe (4) nicht-geriffelte Abschnitte aufweisen, die hier und da zwischen den geriffelten Abschnitten vorliegen.

Revendications

1. Plaque de briques souple (6) comprenant un maillage (1) avec une pluralité de tiges de soutien (2) qui sont insérées dans des fentes (6a) formées dans les briques (6) de ladite plaque de briques souple, lesdites tiges de soutien (2) étant entrelacées avec une pluralité de tiges de positionnement (4) desdites briques (6), dans laquelle ledit maillage (1) comprend une tige de renfort (3) entre chaque paire de tiges de soutien (2) étant entrelacées avec lesdites tiges de positionnement (4), lesdites tiges de soutien (2), tiges de renfort (3) et tiges de positionnement (4) comportant des sections ondulées et ledit maillage formant une structure avec des espaces (5) dans lesquels sont disposées lesdites briques (6), **caractérisée en ce que** ;

a. la distance entre chaque paire de tiges de renfort (3) est une distance spécifique prédéterminée (d1) correspondant à la valeur de la taille nominale des briques (6) et correspondant à la distance (d1) entre les points (P1, P2) aux intersections desdites tiges de positionnement (4) avec lesdites tiges de renfort (3) ;
b. la valeur de la largeur du maillage est une valeur standard spécifique (A) correspondant au nombre et à la taille nominale (d1) des briques, ladite taille nominale correspondant à son tour à la distance (d1) entre chaque paire de tiges de renfort (3) du maillage ;
c. la distance entre toute tige de soutien (2) et sa tige de renfort adjacente (3) correspond à une longueur simple (l) de pas d'ondulation des tiges de positionnement (4) ; et dans laquelle
d. la longueur (l) des pas d'ondulation du positionnement aux intersections desdites tiges de positionnement (4) avec lesdites tiges de renfort (3) est au moins une longueur minimum (lmin) déterminée selon la formule mathématique :

$$\text{Longueur minimale} \quad (lmin) = \frac{(d1-(d2+\phi)}{2}$$

dans laquelle :

- *"lmin"* est la longueur des pas d'ondulation ou la distance entre une crête et un creux adjacent à ladite crête ou vice versa ;
- *"d1"* est la distance entre les points (P1, P2) pour le chevauchement des tiges de renfort (3) ou la taille nominale de la brique (6) ;
- "*d2*" est la distance entre les fentes (6a) d'une seule brique (6) ; et
- "*Ø*" est le diamètre d'une tige de soutien (2).

2. Plaque de briques souple, selon la revendication 1, dans laquelle la longueur (l) des pas d'ondulation des tiges de positionnement (4) aux points d'intersection de celles-ci avec les tiges de renfort (3) et des tiges de soutien (2) est une distance comprise entre 10 mm et 20 mm pour les diamètres de tiges de soutien (2) de plus de 1,5 mm, ou une distance comprise entre 3 mm et 13 mm pour les diamètres de tiges de soutien (2) de moins de 1.5 mm.

3. Plaque de briques flexible, selon une quelconque des revendications précédentes, dans laquelle les tiges de positionnement (4) comprennent des sections non ondulées entrecoupées avec les sections ondulées.

4. Plaque de briques flexible, selon une quelconque des revendications précédentes, dans laquelle lesdites tiges de soutien (2) et tiges de renfort (3) forment la déformation du maillage et lesdites tiges de positionnement (4) forment la trame du maillage.

5. Procédé de fabrication d'un maillage (1) pour une plaque de briques flexible (6) selon une quelconque des revendications précédentes, comprenant les étapes de :

a) déterminer une valeur standard pour la largeur (A) de la plaque en question en se basant sur le nombre et la taille nominale des briques (6) devant être incluses dans ladite plaque dans laquelle ladite taille nominale des briques correspond à la distance (d1) entre chaque paire de tiges de renfort (3) du maillage ;
b) marquer une pluralité de points d'intersection (P1, P2) des tiges de renfort (3) sur les tiges de positionnement (4), la distance (d1) entre les points (P1, P2) correspondant à la valeur de la taille nominale de chaque brique (6) pour obtenir la largeur standard susmentionnée (A) ;
c) Ensuite, onduler une pluralité de tiges de soutien (2), de renfort (3) et de positionnement (4) dans au moins une pluralité de sections, en réalisant l'ondulation des tiges de positionnement (4) au moins dans les sections comprenant lesdits points (P1, P2) pour intersection avec les tiges de renfort (3), la longueur des pas d'ondulation desdites tiges de positionnement (4) aux intersections avec lesdites tiges de renfort (3) étant au moins d'une longueur minimale (lmin) selon la formule mathématique :

$$\text{Longueur} \quad (lmin) = \frac{(d1-(d2+\phi)}{2} \quad \text{minimale}$$

dans laquelle :

- *"lmin"* est la longueur des pas d'ondulation ou la distance entre une crête et un creux adjacent à ladite crête ou vice versa ;
- "*d1*" est la distance entre les points (P1, P2) pour le chevauchement des tiges de renfort (3) ou la taille nominale de la brique (6) ;
- "*d2*" est la distance entre les fentes (6a) d'une seule brique (6), et
- "*Ø*" est le diamètre d'une tige de soutien (2) ; et ledit procédé comprend en outre l'étape de

d) faire se chevaucher et entrelacer un groupe de tiges de soutien pré-ondulées (2) et de tiges de renfort (3) avec un groupe de tiges de positionnement pré-ondulées (4), formant une structure (5) avec des espaces dans lesquels sont disposées lesdites briques (6), dans laquelle les points d'intersection desdites tiges (2, 3, 4) sont disposés dans les sections ondulées, et dans laquelle les tiges de renfort (3) sont entrelacées aux points (P1, P2) des tiges de positionnement (4) séparées par la distance (d1).

6. Procédé, selon la revendication précédente, dans lequel à l'étape d) les tiges de renfort (3) sont entrelacées avec des crêtes et creux des tiges de positionnement (4) qui sont adjacentes aux crêtes et creux, dans lequel les tiges de soutien (2) sont entrelacées.

7. Procédé, selon la revendication 5 ou 6, dans lequel à l'étape c), l'ondulation des sections de tiges de positionnement (4) est réalisée en ondulant lesdites tiges (4) de façon discontinue, de telle sorte que lesdites tiges (4) comprennent des sections non ondulées entrecoupées avec les sections ondulées.

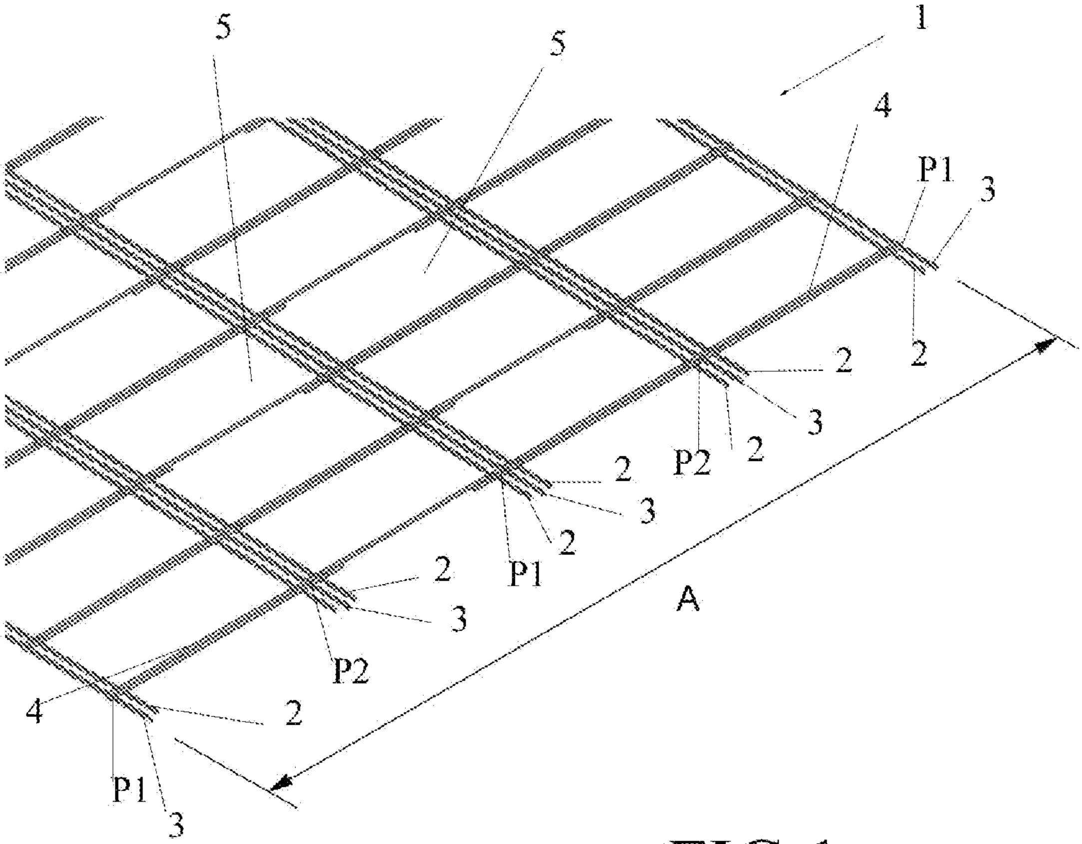

FIG.1

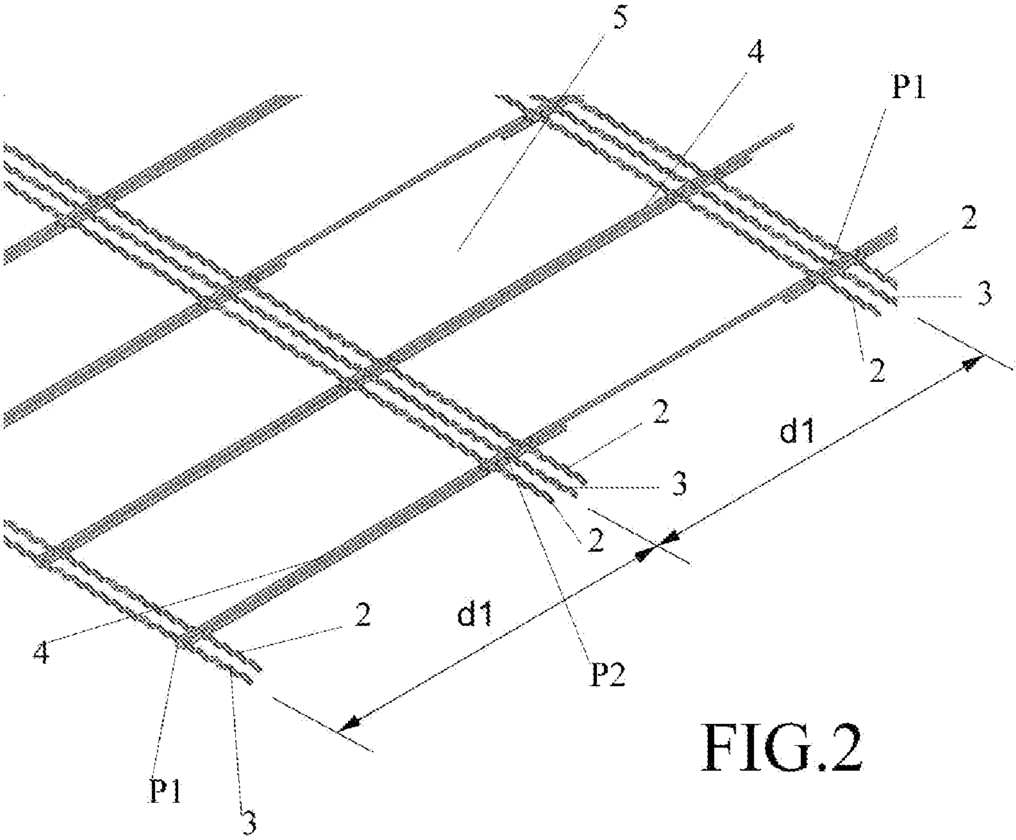

FIG.2

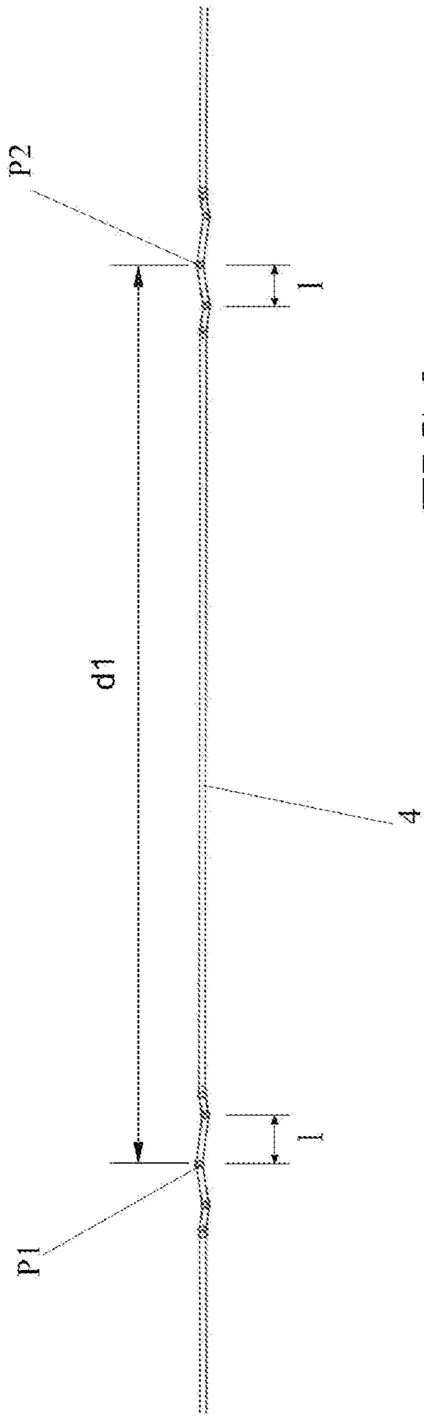

FIG.3

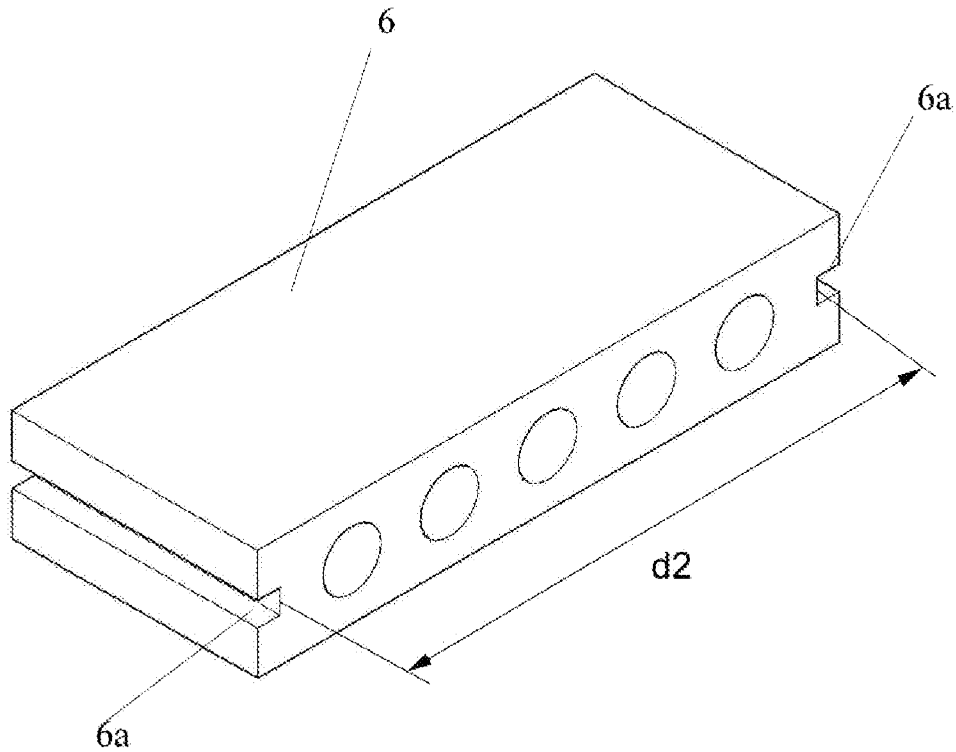

FIG.4

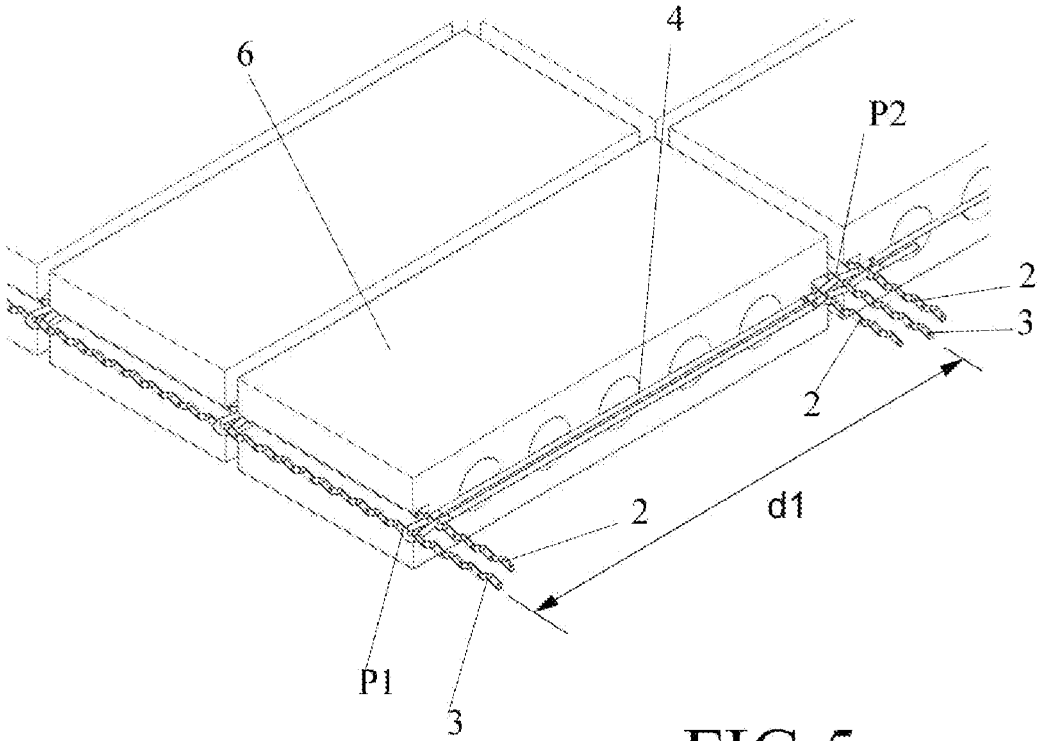

FIG.5

REFERENCES CITED IN THE DESCRIPTION

Patent documents cited in the description

- EP 2154302 A **[0004]**
- ES 201030013 **[0004]**