(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 170 308**
B1

(12) # EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **31.10.90**

(51) Int. Cl.[5]: **E 04 B 2/08**

(21) Application number: **85201019.8**

(22) Date of filing: **27.06.85**

(54) **Plate-shaped, rectangular linkable building element.**

(30) Priority: **28.07.84 NL 8402036**

(43) Date of publication of application:
05.02.86 Bulletin 86/06

(45) Publication of the grant of the patent:
31.10.90 Bulletin 90/44

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE

(56) References cited:
AU-B- 514 614
DE-A-2 801 601
DE-A-2 947 653
FR-A-2 042 175
US-A-3 818 656

(73) Proprietor: **Kalkzandsteenfabriek Harderwijk B.V.**
Einsteinstraat 5
NL-3846 BH Harderwijk (NL)

(72) Inventor: **Schalij, Jan**
Eperweg 53
NL-8072 DA Nunspeet (NL)

(74) Representative: **Noz, Franciscus Xaverius, Ir. et al**
Boschdijk 155 P.O. Box 645
NL-5600 AP Eindhoven (NL)

EP 0 170 308 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

Courier Press, Leamington Spa, England.

Description

The invention relates to a plate-shaped, rectangular, building element of stone-like material comprising a front face, a rear face parallel to said front face and two pairs of side faces extending between the front face and the rear face, the side faces of each pair being parallel to one another, one side face of the one pair of side faces being provided with at least one projecting rib extending in the longitudinal direction of said side face, whilst a given distance from the ends of said side face the rib has two parts broader than the further parts of the rib, the other side face of said pair of side faces having a corresponding recess extending over the whole length of the building element and provided with parts having a relatively small cross-section and parts having a relatively broad cross-section, the arrangement being such that in stacking the building elements upon each other in an off-set manner the ribs fit into the recesses in order to prevent relative displacement of the stacked building elements in a direction transverse to the longitudinal direction of said side faces.

Such plate-shaped building elements, which are made from stone-like material, for example, lime sand stone, concrete or the like, are often manufactured in a factory in given dimensions. On the building site the building elements are stacked side by side and one on the other for erecting a wall or the like. It has then to be ensured that the front faces and the rear faces of the various building elements should lie as much as possible in one plane for obtaining a wall which will be as smooth as possible. Such wall surfaces are often finished by applying a plaster layer of the like, but it will be obvious that the smoother is the wall surface prior to applying the plaster layer, the smaller will be the quantity of plaster material to be applied, which not only means saving of material but also an important reduction of labour time.

From US-A-3.818.656 there is known such a building element, wherein the rib on one face as well as the recess in the opposite face has a rectangular cross-section. Thereby the broader parts of the rib can not be accommodated in the smaller parts of the main recess, however only in mating recesses which are formed by wider parts of the main recess.

So said known building elements can only be stacked onto each other in one particular off-set position. In order to allow such stacking of the elements onto each other there has to be some clearance between the walls of the projecting rib and the walls of the recess accommodating said rib, so that it can not be ensured that after stacking of the elements on the building side the front and rear faces resp. of said elements are flush.

A further disadvantage of said known building elements is that said building elements can not be stacked straight one above the other for handling during manufacturing, transport and storing.

Now the building element according the invention is characterised by that the rib as well as the recess have a trapezium-shaped cross-section and that the cross-section of the projecting rib generally decreases in a direction away from the corresponding surface and that the cross-section of the recess decreases from the corresponding other side face towards the bottom of said recess whereby the shapes and dimensions of said rib and said recess are such, that in stacking two of these building elements straight one above the other, the broader parts of the rib fit with some amount of play into the parts of the recess, having a relatively broad cross-section and the further parts of the rib fit with some amount of play into the parts of the recess having a relatively small cross-section, and in stacking the building elements upon each other in an off-set manner in the longitudinal direction of said side faces, the longitudinal faces of the parts of the recess having the relatively small cross-section contact the longitudinal faces of the broader parts of the rib.

The use of such building elements permits stacking them for transport and storing one on the other without causing problems with respect to the presence of the projecting ribs, since they can be arranged with ample amount of clearance in the recesses of the neighbouring building elements, whilst there is no risk of damage of the projecting ribs.

In erecting a wall or the like the building elements are, however, usually relatively off-set, whereby a broader part of a rib will fall into a part of a recess of smaller cross-section, so that, so to say, a kind of guiding effect will occur between the elements and so in stacking up the building elements will become as far coplanar as possible.

In practice it has been found that the use of the construction embodying the invention can provide a saving of time of about 30 percent for establishing, setting and aligning the building elements, so that using the building elements in the erection of walls or the like involves an important saving in time, in addition to the fact that considerable saving is obtained in the further finishing of the walls owing to the materially smoother wall surfaces, than usually.

It is noted that from AU-B-514614 there are known building elements with projecting ribs and corresponding mating recesses on opposite side faces in which the cross-section of the ribs decreases away from the side face.

However the cross-section of these ribs is constant over the complete length of the rib so that from said reference there can not be derived the advantage obtained by using a rib with two parts broader than the remaining part of the rib as disclosed in the present description.

Preferably also the side faces of the other pair have projecting ribs and grooves so that in neighbouring building elements the projecting ribs of a side face of a building element fit into grooves in the adjacent side face of the other building element. Also in this case the ribs and grooves

can contribute to orientating the neighbouring building elements relative to another, whilst by using building elements provided with projecting ribs fitting in grooves of adjacent building elements, in addition, a satisfactory sound insulation can be obtained, which is particularly desirable for walls erected between neighbouring dwellings.

The invention will be described hereinafter with reference to the accompanying drawing.

Fig. 1 is a perspective view of an embodiment of a building element in accordance with the invention.

Fig. 2 is a side view of the element of Fig. 1.

Fig. 3 shows the relatively facing ends of two building elements as shown in Fig. 1.

Fig. 4 shows part of a cross-sectional view taken on the line IV-IV in Fig. 1.

Fig. 5 shows a part of a cross-sectional view of Fig. 1 taken on the line V-V in Fig. 1.

Fig. 6 shows a part of a cross-sectional view of Fig. 1 taken on the line VI-VI in Fig. 1.

Fig. 7 shows a part of a cross-sectional view taken on the line VII-VII in Fig. 1.

Fig. 8 illustrates the manner in which the building elements shown in Fig. 1 can be piled up for transport and storage.

Fig. 9 shows a sectional view of parts of two building elements bearing one on the other for transport and/or storage.

Fig. 10 shows the manner in which the building elements can be relatively off-set in erecting a wall.

Fig. 11 is a sectional view of two relatively off-set, stacked building elements, between which a mortar layer is arranged.

Fig. 12 is a sectional view like Fig. 11 without mortar layer.

Fig. 13 shows a further plate-shaped building element which can be used in erecting walls or the like in conjunction with the plate-shaped building element of Fig. 1.

Fig. 14 is a side view of the element of Fig. 13.

Fig. 15 is a plan view of the ends of two neighbouring building elements as shown in Fig. 13.

Fig. 16 is an elevational view of a wall erected by means of the building elements shown in Figs. 1 and 15.

Fig. 17 is a lateral view of the wall shown in Fig. 16.

Figs. 18 and 19 are lateral views of further embodiments of walls that can be constructed by using building elements in accordance with the invention.

The building element 1 of Fig. 1 is mainly a parallelepiped having a front face 2, a rear face 3 parallel to said front face, a first pair of relatively parallel side faces 4 and 5 and a second pair of relatively parallel side faces 6 and 7.

The side face 5 is provided with a rib 8 extending in the longitudinal direction of the building element 1 and at a given distance from the two ends of the side face concerned provided with widened parts 9 and 10.

For the invention it is not decidedly necessary that the rib covers the whole length of the side face 5, but the rib may have local interruptions. In the embodiment shown local interruptions are provided at the height of holes 11 internally of the building element at right angles to the side face 5. In the case of heavier building elements such holes 11 can be made in order to enable catching such building elements with the aid of suitable pincers for lifting them.

From Fig. 1 it is furthermore apparent that in the side face 4 parallel to side face 5 perpendicularly below the rib 8 there is a corresponding groove or recess 12 having perpendicularly below the widened parts 9 and 10 of the rib 8 widened, recessed part 13 and 14 respectively.

From Figs. 4 to 7 it will be apparent that, in a cross-sectional view, the broad side of a rib 8 and the wider parts 9 and 10 of said rib 8 gradually become smaller in a direction remote from the side 5. The recess 12 and the wider parts 13 and 14 of this recess have a correspondingly shaped sectional area.

For storage and transport building elements of the kind set forth are piled straight one above the other, as is illustrated in Fig. 4. The rib 8 then falls in the recess 12 and the wider parts 9 and 10 of the rib 8 get into the wider parts 13 and 14 of the recess 12. As is shown in Fig. 9 the embodiment is such that there is some amount of play between the boundary faces of the rib 8 with its wider parts 9 and 10 and the boundary faces of the recess 12 with its wider parts 13 and 14. It is ensured that the dimension of the wider parts 13 and 14 of the recess 12, measured in the longitudinal direction of the side faces 4 and 5 is slightly greater than the dimension of the widened parts 9 and 10 of the rib 8, measured in the longitudinal direction. Consequently the building elements can be readily stacked one on the other for transport and/or storage without the risk of damage of the projecting ribs 8.

It is furthermore shown in Figs. 1 to 3 that one side face 6 is provided with two projecting ribs 15 and 16, a groove 17 between said ribs and a groove 18 located near the rib 16 and extending up to the front face 2. The rib 15 adjoins the rear face 3. The opposite side face 7 of the building element concerned is provided with two ribs 19 and 20, a groove 21 between the ribs 19 and 20 and a groove 22 located at the side of the rib 19 and adjoining the rear face 3. The projecting rib 22 adjoins the front face 2.

It will be obvious, in particular, from Fig. 3, that in this construction the ribs 15 and 16 of a plate-shaped building element can be slid into the grooves 21 and 22 of the adjacent building element, the projecting ribs 19 and 20 of the last-mentioned building element automatically falling into the grooves 17 and 18 of the first-mentioned building element.

When erecting a wall by using the building elements described above the building elements arranged in layers lying one above the other are relatively off-set in the direction of length of the

building elements as is illustrated in Figs. 10 and 14. As a result the widened parts 9 and 10 of a building element get into the non-widened parts of the recess 12 of an element disposed thereabove. Prior to disposing the elements one on the other a mortar layer 23 is frequently applied between the elements to a conventional thickness of about 2 mm. From Fig. 11 it will be obvious that the boundary faces of the widened parts 9 and 10 of the rib 8 co-operate with the boundary faces of the non-widened parts of the recess 20 in order to carry out the orientation of the stacked building elements so that the front faces and the rear faces of these building elements will lie in one plane as satisfactorily as possible.

When no mortar is applied between the elements, the situation of Fig. 12 is obtained.

As a matter of course the arrangement is carried out so that with the interposition of a mortar layer the projecting ribs 15, 16, 19 and 20 of the side faces 6, and 7 fall into the recesses 17, 18, 21 and 22. Also then the boundary faces of the tapering ribs and the co-operating, inclined boundary faces of the recesses ensure the orientation of the building elements arranged side by side.

The projecting ribs and the grooves receiving the projecting ribs ensure not only a satisfactory orientation of the building elements relative to one another, but contribute considerably to sound insulation.

In order to obtain in the off-set disposition of the building element lying one above the other the desired effect between the widened parts 9 and 10 of the ribs and the non-widened parts of the recesses 12 co-operating therewith, care is taken that the distance between the two parts 9 and 10 on a particular building element differs from the distance between the nearest parts 9 and 10 of two building elements arranged side by side, so that it is avoided that in a relatively off-set position of superjacent building elements nevertheless a widened part of a rib should fall into a widened part of a recess.

As a matter of course, building elements of the kind set forth can be made with many different dimensions, whilst also the dimensions of the ribs and the recesses can be freely chosen.

In an advantageous, practical embodiment the widened parts 9 and 10 of a rib 8 and the widened parts 13 and 14 of a recess 12 resp., measured from the side 6 are located at a distance of about 29/90 and 61/90 respectively of the length of the side 5 from the respective side 6. In the non-widened part the rib had a trapezoidal section having a base width of 29 mm, a top width of 10 mm and a height of 10 mm. The dimensions of the cross-sections of the widened parts 9 and 10, also having a trapezoidal shape, were: base width 33 3/4 mm, the top width 16 mm and the height 10 mm. Measured in the direction of length the dimension of a widened part was about 50 mm and the transition between the widened part of the rib and the part of the rib with the normal width had a length of about $32\frac{1}{2}$ mm.

In a building element having a rib of this construction the trapezoidal cross-sectional area of the recess 12 had a base width of 32 mms, a top width of $11\frac{1}{2}$ mm and a height of $11\frac{1}{2}$ mm. A widened part 13 and 14 respectively of the recess 12 had also a trapezoidal cross-section having a base width of $37\frac{1}{2}$ mm, a top width of $18\frac{1}{2}$ mm and a height of $11\frac{1}{2}$ mm. The length of such a widened part was about 70 mm.

For finishing the walls erected by the building elements of the kind set forth on the top side it is not desirable to have ribs projecting on the top side. In conjunction with the embodiments described above it is, therefore, efficient to use the building element 24 shown in Figs. 13 to 15, which has, at least for the major part the same structure as the building element shown in Fig. 1, the corresponding parts of which are, therefore, designated by the same reference numerals as in Fig. 1. Instead of using a rib 8, the side face 5 has, however, a recess 25, the section of which corresponds with the recess 12, but this recess 25 does not have widened parts. Such stones can be used for finishing the top layer of a wall. Furthermore such stones can be sawn through the middle along a diagonal line for finishing a ridge facade of Fig. 16 so that two rectangular, trapezoidal building elements 24' and 24'' are obtained, with the aid of which a triangular gable can be built in the manner shown in Fig. 16.

As a matter of course, within the spirit and scope of the invention variations and/or completions of the constructions are possible.

As is shown in Figs. 1 to 17 relatively broad building elements with a rib and a groove respectively can be used and, of course, a plurality of ribs and grooves can be arranged side by side. A further embodiment is shown in Fig. 18, in which is used a building element as described in EP-O-103 936, in which each building element is built up from two plate-shaped parts 26 and 27 of stone-like material with an interposed layer of insulating material. As is shown, the two plate-shaped parts 26 and 27 can be provided with ribs and grooves, but it is also possible to provide only one of these plates with ribs and grooves.

Fig. 19 shows an embodiment in which building elements 29 of the kind of the construction of Fig. 17 are used which may have a smaller thickness and which are furthermore provided in a similar manner with projecting grooves and recesses. These building elements are employed as the inner plate of a hollow wall, to which insulating material 30 is applied, whilst the hollow wall is furthermore provided with an outer plate 32 of bricks.

Claims

1. A plate-shaped rectangular building element (1) of stone-like material comprising a front face (2), a rear face (3) parallel to said front face (2) and two pairs of side faces (4, 5; 6, 7) extending between the front face and the rear face, the side faces of each pair being parallel to one another,

one side face (5) of the one pair of side faces (4, 5) being provided with at least one projecting rib (8) extending in the longitudinal direction of said side faces (5), whilst a given distance from the ends of said side face (5) the rib (8) has two parts (9, 10) broader than the further parts of the rib (8), the other side face (4) of said pair of side faces having a corresponding recess (12) extending over the whole length of the building element and provided with parts having a relatively small cross-section and parts (13, 14) having a relatively broad cross-section, the arrangement being such that in stack in the building elements upon each other in an off-set manner the ribs fit into the recesses in order to prevent relative displacement of the stacked building elements in a direction transverse to the longitudinal direction of said side faces, characterized in, that the rib (8) as well as the recess have a trapezium-shaped cross-section and that the cross-section of the projecting rib (8) generally decreases in a direction away from the corresponding surface (5) and that the cross-section of the recess (12) decreases from the corresponding other side face (4) towards the bottom of said recess, whereby the shapes and dimensions of said rib (8) and said recess (12) are such, that in stacking two of these building elements straight one above the other, the broader parts (9, 10) of the rib (8) fit with some amount of play into the parts (13, 14) of the recess, having a relatively broad cross-section and the further parts of the rib (8) fit with some amount of play into the parts of the recess (12) having a relatively small cross-section, and in stacking the building elements upon each other in an off-set manner in the longitudinal direction of said side faces (4, 5), the longitudinal faces of the parts of the recess (12) having the relatively small cross-section contact the longitudinal faces of the broader parts (9, 10) of the rib (8).

2. A building element as claimed in Claim 1 characterized in that the distance between two broader parts (9, 10) of a rib (8) arranged on an element (1) differs from the distance between the most adjacent broader parts of the ribs of two building elements disposed side by side with their ribs (8) aligned to one another.

3. A building element as claimed in anyone of the preceding Claims characterized in that the side faces (6, 7) of the other pair are provided with projecting ribs (15, 16; 19, 20) and grooves (17, 18; 21, 22) so that the projecting ribs of neighbouring building elements (1) of a side face fit into grooves in the adjoining side face of the other building element.

4. A building element as claimed in Claim 3 characterized in that each side face (6, 7) is provided with a plurality of ribs (15, 16; 19, 20) having the same cross-sections and a plurality of grooves (17, 18; 21,22) of the same cross-sections, whilst, viewed in a direction normal to the longitudinal direction of these ribs and grooves, at a place where one side face has a groove, the other side face is provided with a rib.

5. A plate-shaped rectangular building element of stone-like material to be used in conjunction with a building element as claimed in any of the preceding claims comprising a front face (2), a rear face (3) parallel to said front face (2) and two pairs of side faces (4, 5; 6, 7) extending between the front and the rear face, the side faces of each pair being parallel to one another, one side (4) of the one pair being provided with a recess (12) extending over the whole length of the building element and provided with parts having a relatively small cross-section and parts (13, 14) having a relatively broad cross-section, the arrangement being such that in stacking building elements upon each other in an off-set manner protruding ribs of building elements as described in claims 1-4 can be accommodated into said recess (12), characterized in that said recess (12) has a cross-section decreasing from the corresponding side face toward the bottom of said recess, whereby the shape of said recess (12) and the shape of said ribs (8) of said building elements according claims 1-4 are such, that in stacking two of said building elements straight one above the other the broader parts (9, 10) of the rib (8) fit with some amount of play into the parts (13, 14) of the recess, having a relatively broad cross-section and the further parts of the rib (8) fit with some amount of play into the parts of the recess (12) having a relatively small cross-section and in stacking the building elements upon each other in an off-set manner in the longitudinal direction of said side faces (4, 5) the longitudinal faces of the parts of the recess (12) having the relatively small cross-section contact the longitudinal faces of the broader parts (9, 10) of the rib (8), and whereby the other side face (5) of said one pair has been provided with a recess (25) extending in the longitudinal direction of said side face and having a cross-section corresponding to the smallest cross-section of the recess (12) in the opposite side face (4.

Patentansprüche

1. Plattenförmiges rechtwinkliges Bauelement (1) aus steinartigem Material mit einer Frontfläche (2), einer rückwärtigen Fläche (3) Parallel zu der besagten Frontfläche (2) und zwei Paaren von Seitenflächen (4, 5; 6, 7), die sich zwischen der Frontfläche und der rückwärtigen Fläche erstrekken, wobei die Seitenflächen jedes Paares parallel zueinander sind, eine Seitenfläche (5) des einen Paares von Seitenflächen (4, 5) weist dabei wenigstens eine vorstehende Rippe (8) auf, die sich in Längsrichtung der Seitenflächen (5) erstreckt, während in einem vorgegebenen Abstand von den Enden der besagten Seitenflächen (5) die Rippe (8) zwei Abschnitte (9, 10) hat, die breiter sind als die übrigen Abschnitte der Rippe (8), und die andere Seitenfläche (4) des Paares von Seitenflächen hat einen entsprechenden Rücksprung (12), welcher sich über die gesamte Länge des Bauelements erstreckt und Abschnitte aufweist, die einen verhältnismäßig kleinen Querschnitt haben, und Abschnitte (13, 14) mit einem

verhältnismäßig großen Querschnitt, wobei die Anordnung derart ist, daß beim Stapeln der Bauelemente aufeinander in versetzter Anordnung die Rippen mit den Rücksprüngen zusammenpassen, um eine Versetzung der gestapelten Bauelemente in einer Richtung quer zu der Längserstreckung der Seitenflächen zu verhindern, dadurch gekennzeichnet, daß die Rippe (8) ebenso wie der Rücksprung einen trapezförmigen Querschnitt hat und daß der Querschnitt der vorstehenden Rippe (8) im wesentlichen in einer Richtung weg von der entsprechenden Oberfläche (5) abnimmt und daß der Querschnitt des Rücksprungs (12) abnimmt von der entsprechenden anderen Seitenfläche (4) zu dem Boden des Rücksprungs, wobei die Formen und Abmessungen der Rippe (8) und des Rücksprungs (12) derart sind, daß beim Stapeln zweier dieser Bauelemente genau übereinander die breiteren Abschnitte (9, 10) der Rippe (8) zusammenpassen mit etwas Spiel in den Abschnitten (13, 14) des Rücksprungs (12), der einen verhältnismäßig breiten Querschnitt hat, und die weiteren Abschnitte der Rippe (8) passen mit etwas Spiel in die Abschnitte des Rücksprungs (12), die einen verhältnismäßig kleinen Querschnitt haben, und daß beim Stapeln der Bauelemente aufeinander in versetzter Anordnung in Längsrichtung der Seitenfläche (4, 5) die Längsflächen der Abschnitte des Rücksprungs (12), die einen verhältnismäßig kleinen Querschnitt haben, die Längsflächen der breiteren Abschnitte (9, 10) der Rippe (8) berühren.

2. Bauelement nach Anspruch 1, dadurch gekennzeichnet, daß der Abstand zwischen zwei breiteren Abschnitten (9, 10) einer Rippe (8) auf einem Element (1) abweicht von dem Abstand zwischen den benachbarten breiteren Abschitten der Rippen zweier Bauelemente, die Seite an Seite, mit ihren Rippen (8) zueinander ausgerichtet, liegen.

3. Bauelement nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Seitenflächen (6, 7) des anderen paares mit vorstehenden Rippen (15, 16; 19, 20) und Nuten (17, 18; 21, 22) versehen sind, so daß die vorstehenden Rippen benachbarter Bauelemente (1) einer Seitenfläche in die Nuten der benachbarten Seitenfläche des anderen Bauelements passen.

4. Bauelement nach Anspruch 3, dadurch gekennzeichnet, daß jede Seitenfläche (6, 7) mit einer Mehrzahl von Rippen (15, 16; 19, 20) versehen ist, die denselben Querschnitt und eine Mehrzahl von Nuten (17, 18; 21, 22) die gleichen Querschnitt haben, während in einer Richtung lotrecht zur Längsrichtung dieser Rippen und Nuten gesehen an einer Stelle, an der eine Seitenfläche eine Nut hat, die andere Seitenfläche mit einer Rippe versehen ist.

5. Plattenförmiges rechtwinkliges Bauelement aus steinartigem Material zur Verwendung in Verbindung mit einem Bauelement, wie es in einem der vorhergehenden Ansprüche beansprucht worden ist, mit einer Frontfläche (2), einer rückwärtigen Fläche (3) parallel zu der besagten Frontfläche (2) und zwei Paaren von Seitenflächen (4, 5; 6, 7), die sich zwischen der Frontfläche und der rückwärtigen Fläche erstrecken, wobei die Seitenflächen jedes Paares parallel zueinander sind, eine Seite (4) des einen Paares mit einem Rücksprung (12) versehen ist, welcher sich über die gesamte Länge des Bauelements erstreckt und Abschnitte aufweist, die einen verhältnismäßig kleinen Querschnitt haben und Abschnitte (13, 14), die einen verhältnismäßig großen Querschnitt haben, wobei die Anordnung derart ist, daß beim Stapeln der Bauelemente aufeinander in einer versetzten Anordnung die vorstehenden Rippen der Bauelemente, wie sie in den Ansprüchen 1 bis 4 beansprucht sind, in die besagten Rücksprünge (12) hineinpassen, dadurch gekennzeichnet, daß der besagte Rücksprung (12) einen Querschnitt hat, der von der entsprechenden Seitenfläche zum Boden des Rücksprung abnimmt, wobei die Form des Rücksprungs (12) und die Form der Rippen (8) der Bauelemente nach den Ansprüchen 1 bis 4 derart sind, daß beim Stapeln zweier dieser Bauelemente genau übereinander die breiteren Abschnitte (9, 10) der Rippe (8) mit gewissem Spiel in die Abschnitte (13, 14) des Rücksprungs passen, die einen verhältnismäßig breiten Querschnitt haben, und die übrigen Abschnitte der Rippe (8) mit etwas Spiel in die Abschnitte des Rücksprungs (12) passen, die einen verhältnismäßig kleinen Querschnitt haben, und beim Stapeln der Bauelemente über einander in einer verstezten Anordnung in Längsrichtung der besagten Seitenflächen (4, 5) die Längsflächen der Abschnitte des Rücksprungs (12), die einen verhältnismäßig kleinen Querschnitt haben, die Längsflächen der breiteren Abschnitte (9, 10) der Rippe (8) berühren und wobei die andere Seitenfläche (5) dieses einen Paares mit einem Rücksprung (25) versehen ist, der sich in Längsrichtung der besagten Seitenfläche erstreckt und einen Querschnitt hat, der dem kleinsten Querschnitt des Rücksprungs (12) in der gegenüberliegenden Seitenfläche (4) entspricht.

Revendications

1. Elément rectangulaire (1) de construction en forme de plaque constitué d'un matériau analogue à la pierre et comprenant une face avant (2), une face arriére (3) parallèle à la face avant (2) et deux paires de faces latérales (4, 5; 6, 7) disposées entre la face avant et la face arrière, les faces latérales de chaque paire étant parallèles l'une i l'autre, une première face latérale (5) de la première paire de faces latérales (4, 5) ayant au moins une nervure en saillie (8) qui dépasse dans la direction longitudinale des faces latérales (5) alors que, à une distance donnée des extrémités de la face latérale (5), la nervure (8) a deux parties (9, 10) qui sont plus larges que les autres parties de la nervure (8), l'autre face latérale (4) de ladite paire de faces latérales ayant une cavité correspondante (12) disposée sur toute la longueur de l'élément de construction et ayant des parties de section relativement petite et de parties (13, 14) de section relativement large, la disposition étant

telle que, lors de l'empilement des éléments de construction les uns sur les autres de manière décalée, les nervures se logent dans les cavités et empêchent un déplacement relatif des éléments empilés de construction en direction transversale à la direction longitudinale des faces latérales, caractérisè en ce que la nervure (8) ainsi que la cavité ont une section en forme de trapèze, et en ce que la section de la nervure en saillie (8) diminue de façon générale en s'écartant de la surface correspondante (5), et en ce que la section de la cavité (12) diminue à partir de l'autre face latérale correspondante (4) vers le fond de la cavité, les configurations et dimensions de la nervure (8) et de la cavité (12) étant telles que, lors de l'empilement de deux éléments de construction l'un juste au-dessus de l'autre, les parties relativement larges (9, 10) de la nervure (8) se logent avec un certain jeu dans les parties (13, 14) de la cavité qui ont une section relativement large et les autre parties de la nervure (8) se logent avec un certain jeu dans les parties de la cavité (12) ayant une section relativement petite, et, lors de l'empilement des éléments de construction les uns sur les autres avec un décalage dans la direction longitudinale des faces latérales (4, 5), les faces longitudinales des parties de la cavité (12) qui ont la section relativement petite sont au contact des faces longitudinales des parties relativement larges (9, 10) de la nervure (8).

2. Elément de construction selon la revendication 1, caractérisé en ce que la distance comprise entre deux parties relativement larges (9, 10) d'une nervure (8) disposées sur un élément (1) est différente de la distance comprise entre les deux parties relativement larges les plus proches des nervures de deux éléments de construction placés côte à côte, leurs nervures (8) étant alignées mutuellement.

3. Elément de construction selon l'une quelconque des revendications précédentes, caractérisé en ce que les faces latérales (6, 7) de l'autre paire ont des nervures en saillie (15, 16; 19, 20) et des gorges (17, 18; 21, 22) afin que les nervures en saillie des éléments voisins de construction (1) d'une face latérale se logent dans des gorges de la face latérale adjacente de l'autre élément de construction.

4. Elément de construction selon la revendication 3, caractérisé en ce que chaque face latérale (6, 7) a plusieurs nervures (15, 16; 19, 20) ayant les mêmes sections et plusieurs gorges (17, 18; 21, 22) ayant les mêmes sections alors que, en vue en direction perpendiculaire à la direction longitudinale de ces nervures et gorges, à un emplacement auquel une face latérale a une gorge, l'autre face latérale a une nervure.

5. Elément rectangulaire de construction en forme de plaque d'un matériau analogue à la pierre, destiné à être utilisé avec un élément de construction selon l'une quelconque des revendications précédentes, comprenant une face avant (2), une face arriére (3) parallèle à la face avant (2) et deux paires de faces latérales (4, 5; 6, 7) disposées entre les faces avant et arrière, les faces latérales de chaque paire étant parallèles l'une à l'autre, une première face (4) de la première paire ayant une cavité (12) disposée sur toute la longueur de l'élément de construction et ayant des parties de section relativement petite et des parties (13, 14) de section relativement grande, la disposition étant telle que, lors de l'empilement d'éléments de construction les uns sur les autres de manière décalée, des nervures en saillie des èlements de construction tels que décrits dans les revendications 1 à 4 peuvent se loger dans la cavité (12), caractérisé en ce que la cavité (12) a une section qui diminue depuis la face latérale correspondante vers le fond de la cavité, la configuration de la cavité (12) et la configuration des nervures (8) des éléments de construction selon les revendications 1 à 4 étant telles que, lors de l'empilement de deux éléments de construction l'un juste au-dessus de l'autre, les parties relativement larges (9, 10) de la nervure (8) se logent avec un certain jeu dans les parties (13, 14) de la cavité ayant une section relativement large, et les autres parties de la nervure (8) se logent avec un certain jeu dans les parties de la cavité (12) qui ont une section relativement petite et, lors de l'empilement des éléments de construction les uns sur les autres de manière décalée dans la direction longitudinale des faces latérales (4, 5), les faces longitudinales des parties de la cavité (12) qui ont la section relativement petite sont au contact des faces longitudinales des parties relativement larges (9, 10) de la nervure (8), l'autre face latérale (5) de la ladite paire ayant une cavité (25) disposée dans la direction longitudinale de la face latérale et ayant une section qui correspond à la plus petite section de la cavité (12) à la face latérale opposée (4).

FIG.2

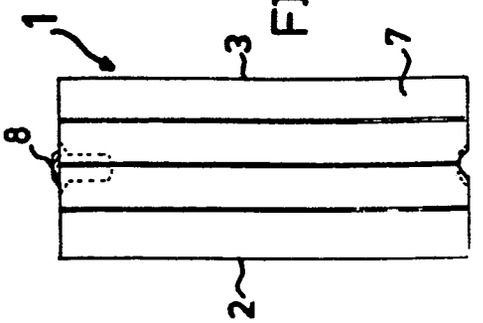


FIG.1

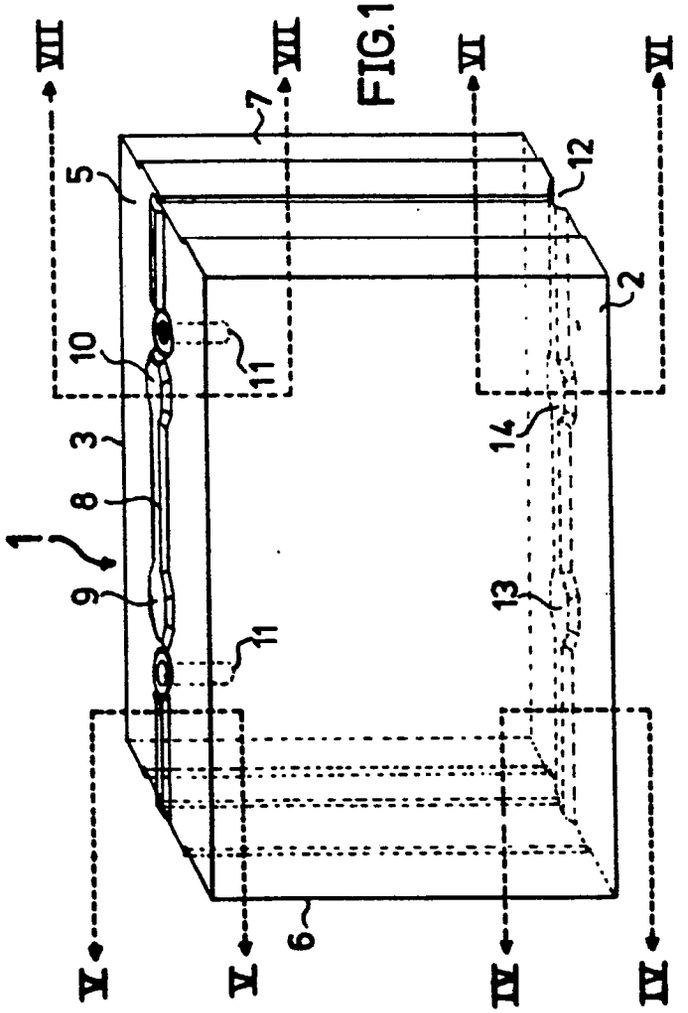
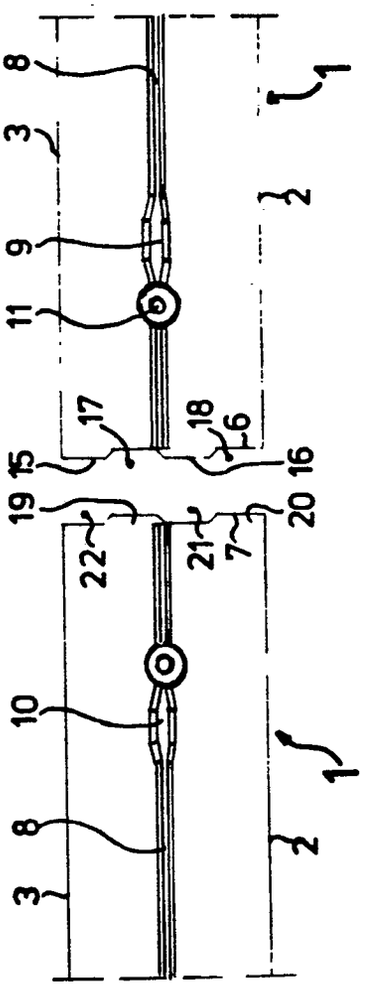


FIG.3



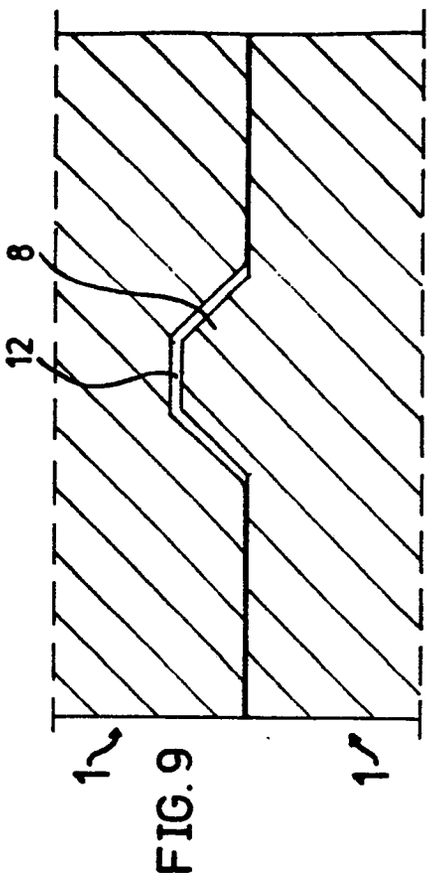


FIG. 9

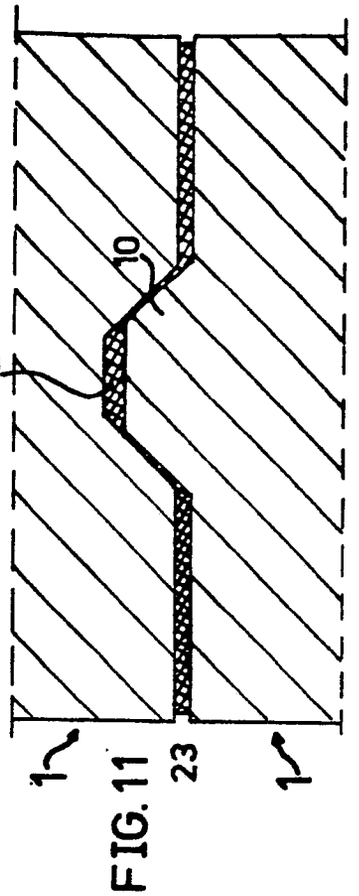


FIG. 11

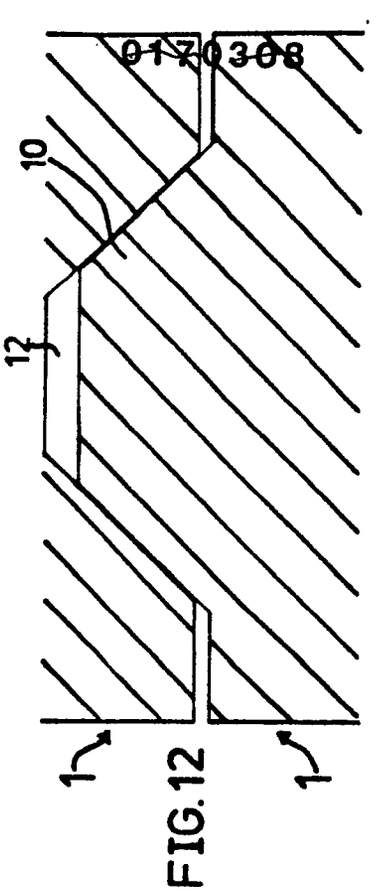


FIG. 12

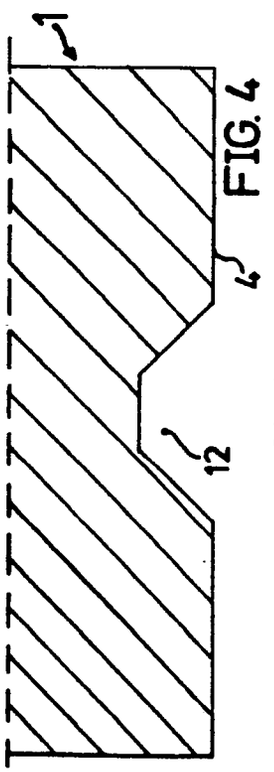


FIG. 4

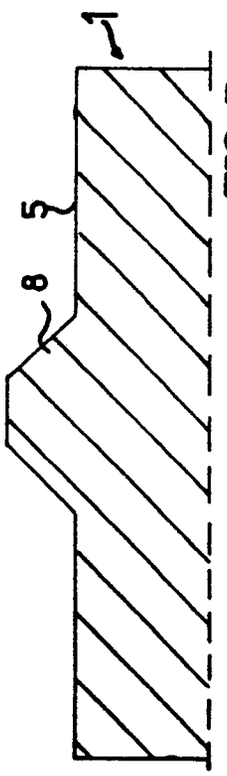


FIG. 5

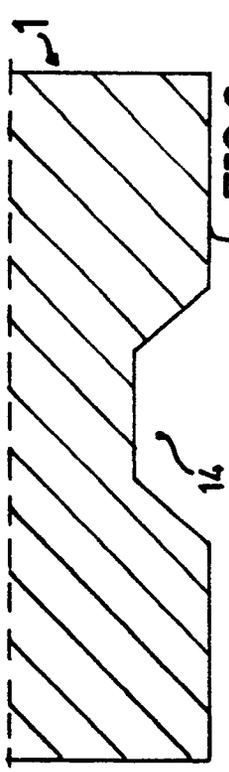


FIG. 6

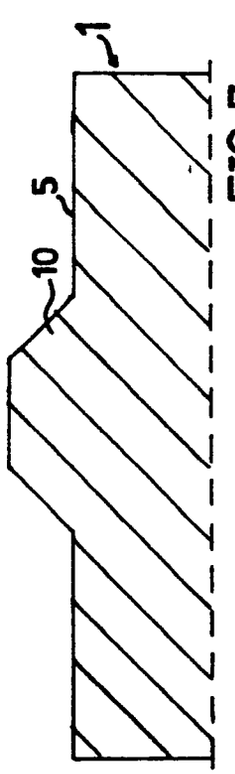


FIG. 7

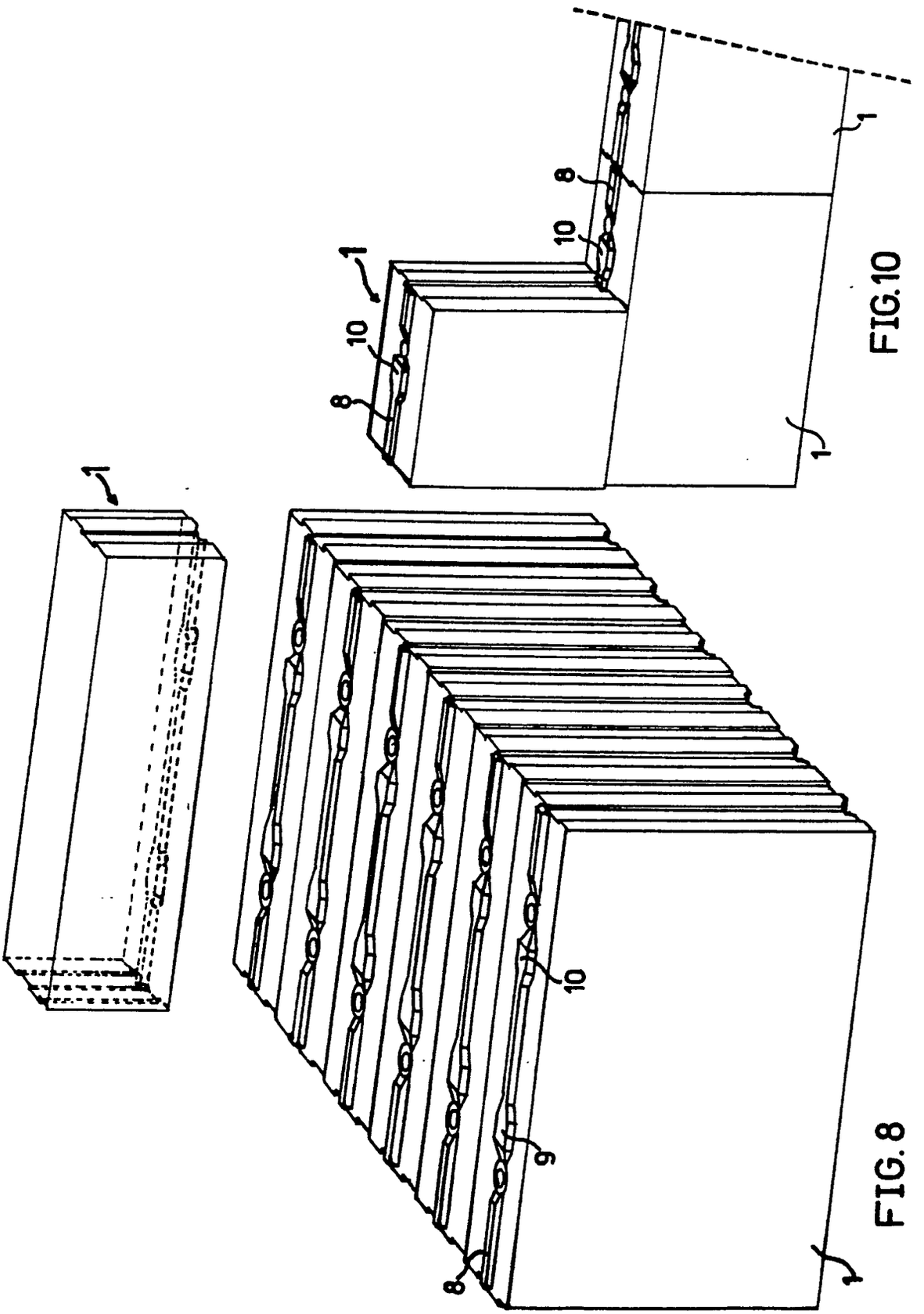


FIG.10

FIG.8

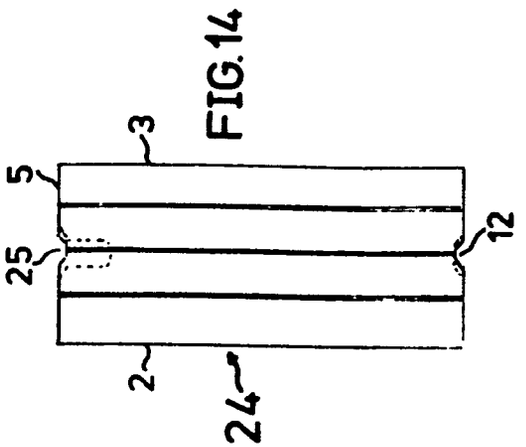


FIG.14

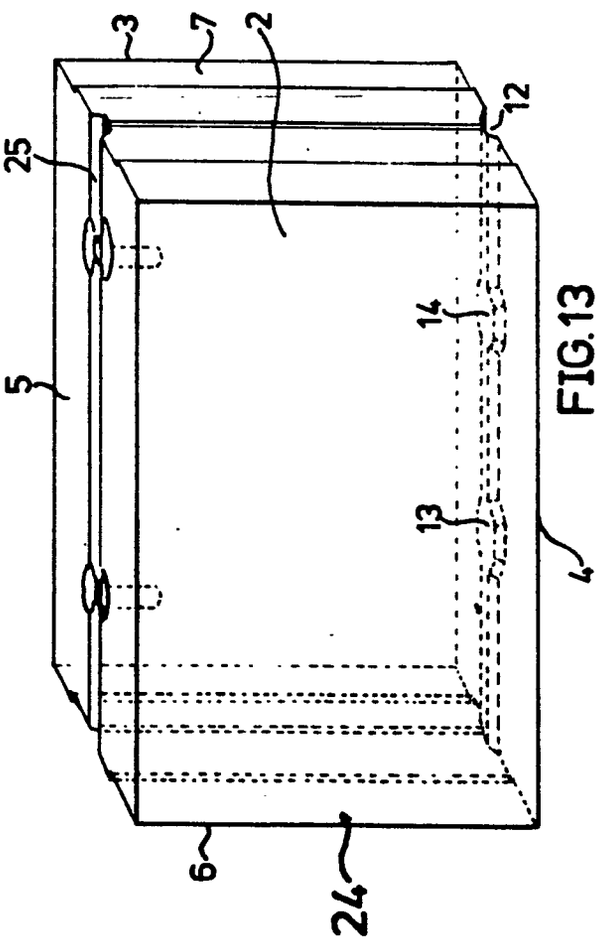


FIG.13

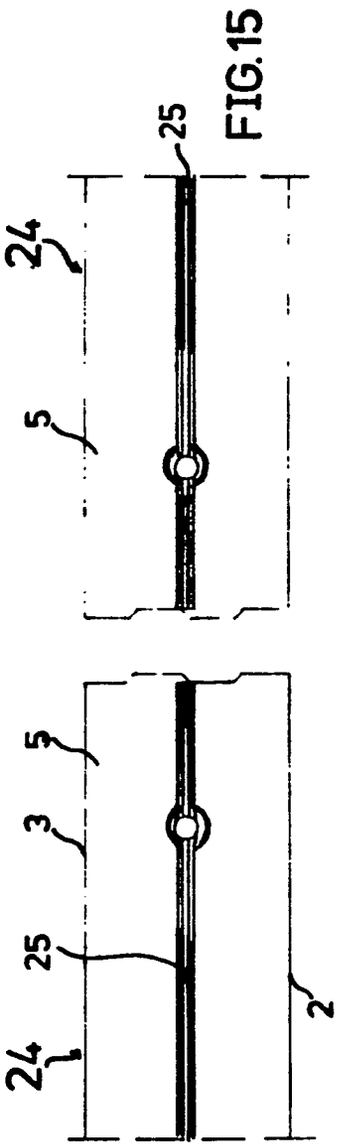


FIG.15

FIG19

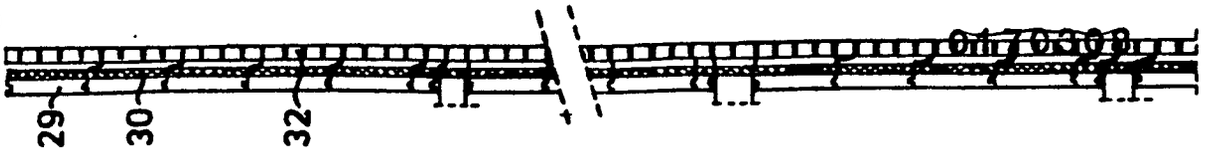


FIG18

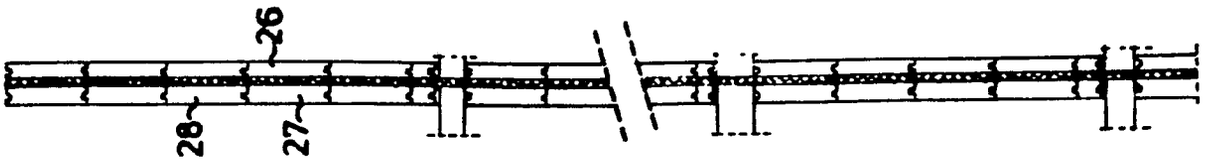
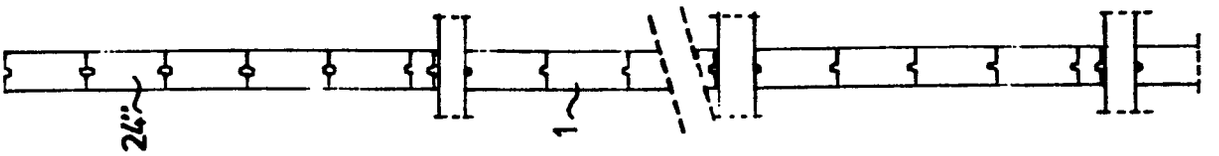


FIG17



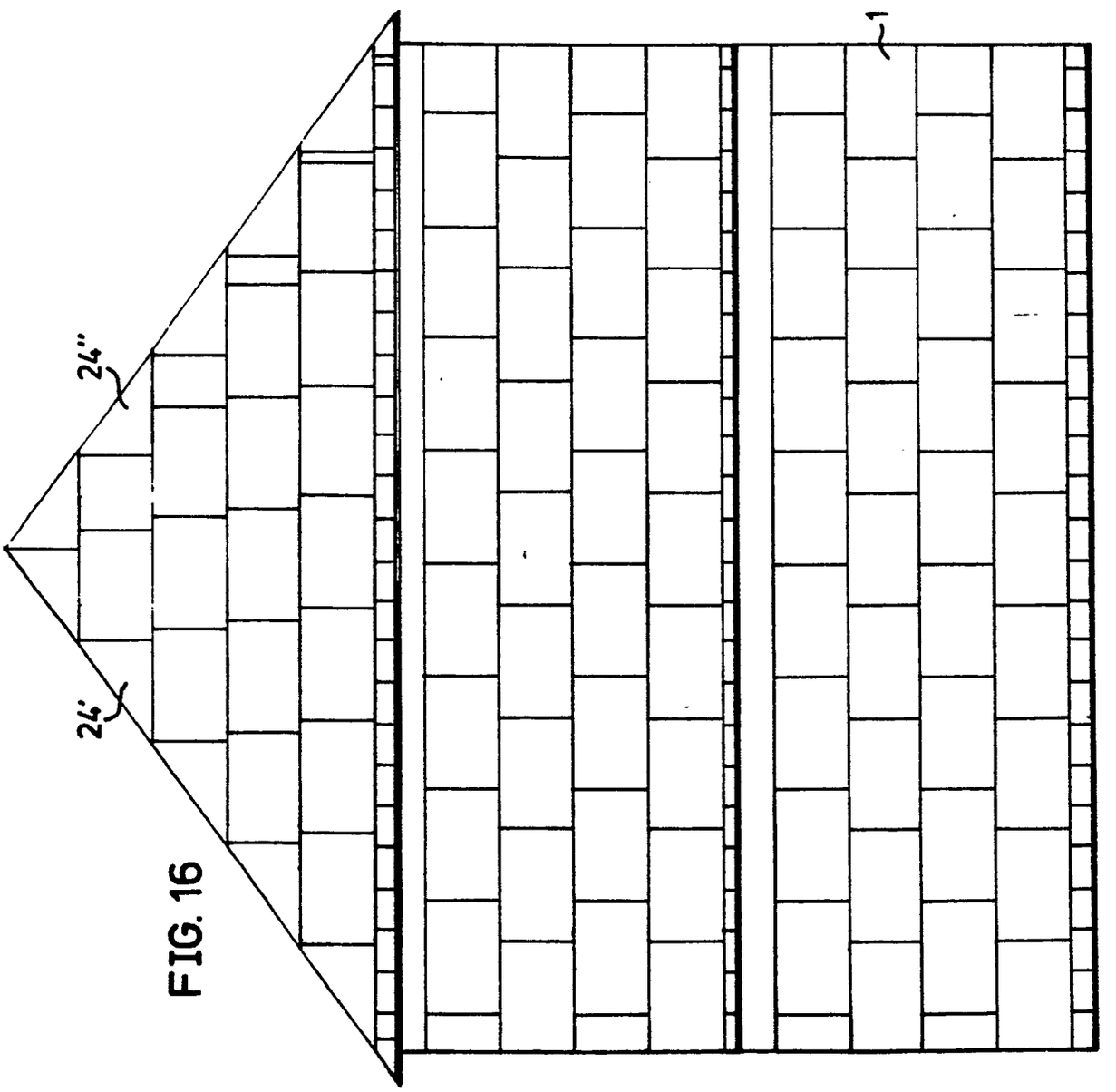


FIG. 16