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(54) **A wall anchor and a cavity wall comprising such an anchor**

Maueranker und Hohlwand mit einem solchen Maueranker

Ancre de mur et mur creux ayant une telle ancre

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Description

[0001] The present invention relates an anchor for a cavity wall as defined in the preamble of claim 1 and a cavity wall comprising an anchor as defined in the preamble of claim 6.

[0002] A wall anchor and a cavity wall of such kind are known from WO 2005/021883 (EP-A-1510629). Herein, a wall anchor is disclosed which is made of a sheet material that is cut into a blank and mounting portions, i.e. the mounting flange and the insulation gripping projections are bent out of the plane. This wall anchor is mounted on the inner wall after it has been raised, preferably together with fitting the insulation slabs. The outer tip of the wall anchor is embedded into the mortar between the bricks during the raising of the outer wall.

[0003] GB-A-2 111 095 also discloses a wall anchor made of a sheet material which is cut into a blank and the insulation gripping projections are bent out of the plane. This wall tie is embedded into the mortar between the bricks during the raising of the inner wall. Likewise the outer tip is embedded into the mortar between the bricks during the raising of the outer wall. This wall tie is only useable when the cavity wall includes an inner wall made of bricks that are stacked with an adhesive mortar in between. Moreover, when laying the outer wall, this wall tie must also be bent to fit into the mortar layer between two brick layers. This could cause the insulation boards to be bent or dislocated.

[0004] In a cavity wall with an inner wall and an outer brick wall, wall ties are used to connect the inner and outer wall in order to stabilise the housing wall. Wall anchors are made of metal, plastic or a combination thereof and they may have different shapes, e.g. rod-like or flat plates. In the cavity, insulation boards are provided. These boards are supported by the wall ties in the cavity. The wall ties consist of transverse pins, e.g. wire pieces, which are fixed to the inner wall during its construction. The insulation boards are then positioned between these protruding wires or mounted by penetrating the wires through the insulation board. Either way, this has the disadvantage that the boards are not accurately mounted, and may be dislocated when the wall ties are bent to fit between the brick layers of the outer wall. Furthermore, when mounting the insulation over the ties, the insulation may break apart, fall off or holes may be punched out.

[0005] Moreover, it is realised that a major disadvantage of these protruding wall ties is that construction workers risk getting hurt when working on a site where cavity walls are under construction. The wall ties often are quite numerous, typically 4-6 pieces per square meter, in order to provide the required strength in the construction to withstand the wind load. By bending the wall ties in order to make them fit with the outer wall construction, the strength of these wall ties is somewhat reduced and there is a risk of some wall ties breaking off. Building requirements generally prescribe a maximum elongation or compression of the wall anchors of 1 mm in the cavity wall. This calls for a high concentration of wall anchors per wall area. However, the wall ties also constitute thermal bridges in the thermally insulated cavity wall construction, and from this perspective, as few wall anchors as possible is preferred, just as fewer wall anchors reduces the building costs involved, and the installation time is shorter.

[0006] On this basis, it is an object by the present invention to provide a cavity wall and an associated wall anchor, which is safe to work with and easy to mount on the inner wall in order to facilitate the mounting of the insulation slabs when raising the cavity wall. It is also an object to provide a wall anchor which ensures a rigid fixation of the outer wall to the inner wall.

[0007] These objects are achieved by a wall anchor and a cavity wall of the initially mentioned kind as characterised by the features of claims 1 and 6 respectively.

[0008] According to the invention, the insulation slabs in the cavity wall may be securely mounted in their right positions by mounting the wall anchors to the finished inner wall during the insulation mounting operation. When using a wall anchor according to the invention with a reinforcing rib, the wall anchors have superior bending resistance when mounted. This result in fewer wall anchors needed to achieve the required tie strength between the inner and outer walls. Thereby, the loss in thermal insulation due to the wall anchors is reduced just as the operation is faster as less wall anchors are to be mounted. This leads to a reduction in the building costs of raising a cavity wall according to the invention.

[0009] In order to be able to bend or twist the wall anchor to fit with a mortar layer in the outer wall, the wall anchor is formed with at least two elongated ribs that are formed in a line with a bendable and/or twistable portion therebetween. The wall anchor may then be bent or twisted with an appropriate tool. In an embodiment, the wall anchor may be bent and/or twisted by hand, e.g. in the manipulating bendable/twistable portion between the elongated ribs.

[0010] In a preferred embodiment of a cavity wall according to the invention, three, preferably two or less wall anchors per square meter are provided. It is found that with a wall anchor according to the invention, a cavity wall meeting the required strength may be provided in both urban and rural areas in buildings of up to approx. 10 meters or even 12 meters in height. The exact number of wall anchors per square meter will usually depend on the location and the height of the building. In practise, it is found that an average of 1.4 wall anchors per square meter is normally sufficient, but for buildings with particular wind load, the average is approx. 2.0-2.5 wall anchors per square meter.

[0011] In an embodiment of a cavity wall according to the invention, it is realised that at least one of the wall anchors may be mounted with a substantially horizontal and/or vertical orientation of the plate-like portion. As, the wall anchors according to the invention may be provided in either horizontally or vertically, extra strength

may be provide and where extra wall anchors can be eliminated, which otherwise would be needed to secure the insulation slabs around openings in the wall, e.g. for doors and windows. The wall anchor may advantageously be mounted in vertical position at the top of the building, where the top edge of the top row of insulation slabs otherwise cannot be supported by this type of anchor because of the insulation holding means penetrating into the insulation. Therefore, the wall anchor is placed between the neighbouring slabs in a vertical position. Because the wall anchor outer part has to be fixed within the horizontal mortar layer between the bricks this outer portion has to be twisted in order to be able to do so.

[0012] The same problem occurs above and below openings for windows etc. The solution here is the same. Also at the lower part of the wall it may be necessary to apply wall anchors in vertical position. In some situations it may be necessary to supplement with more traditional rod shaped anchors placed in the inner part of the slabs.

[0013] The wall anchors are preferably mounted on the inner wall by an elongated fastener mounted through a mounting hole in the wall anchors, which is positioned centrally on at the base of the mounting flange. The mounting hole is positioned on the mounting flange close to the bend line dividing the mounting flange and the bridging portion. Hereby, a rigid mounting can be achieved, where the wall anchor cannot bend in the mounting flange if tension forces are applied to the wall anchor. Appropriate mounting tools are preferably used to shoot an elongated fastener, such as a dowel, into the inner wall for fixing the wall anchor to the inner wall.

[0014] In a preferred embodiment of a cavity wall according to the invention, the insulation slabs are fixed at their peripheral regions, e.g. bottom and top regions, by a series of insulation holding members, where said holding member are positioned on insulation edge region and fixed to the inner wall by elongated fasteners which are penetrated through a mounting hole in the holding member and through the underlying the insulation slab. Hereby, the insulation is properly fixed also along the edge regions in the cavity wall. Preferably, a series of fibrous insulation bricks having a relative high density may be provided on the foot of the inner wall for supporting the insulation slabs. Often a line of bricks are provided on the foot of the inner wall for supporting the insulation. However, by this embodiment of a cavity wall according to the invention, a thermal bridge through the cavity wall may be eliminated.

[0015] In the preferred embodiment, the outer tip of the wall anchor is provided with retention buckles, such as generally transversely orientated ribs relative to the orientation of the elongated portion. By providing an uneven surface on the outer tip, the resistance against the wall anchor being drawn out of the mortar in the outer wall is increased. By providing this pull resistance in the form of buckles, sharp edges are avoided so that the wall anchor according to the invention is satisfying to work with for the builders. Most preferably, the retention ribs on the outer tip are generally V-shaped or C-shaped. Hereby, also transversely directed forces and twisting may be absorbed in the mounting of the outer tip of the wall anchor in the mortar of the outer wall, and avoiding the tip from becoming loose in the mortar of the outer wall.

[0016] Preferably, the ribs on the wall anchor are formed in the centre line of the elongated portion of the bridging portion. Hereby, a simple distribution of the forces applied to the outer tip is transferred to the mounting flange and to the inner wall, and the risk of bending the wall anchor if it is to absorb a high load is reduced.

[0017] In the following, the invention is described with reference to the accompanying drawings, in which:

Figure 1	is a schematic cross-sectional view of a cavity wall;
Figure 2	is a schematic perspective view of an inner wall of a cavity wall with insulation slabs mounted thereon according to an embodiment of the invention;
Figure 3	is a schematic perspective view of an inner wall with insulation slabs mounted thereon by wall anchors;
Figure 4	shows the mounting of a wall anchor to an inner wall as shown in fig. 3;
Figure 5	shows a preferred embodiment of a wall anchor according to the invention; and
Figures 6 to 8	show various adaptations of the wall anchor in fig. 5 for mounting.

[0018] With reference to figure 1, a cavity wall includes an inner wall 1, and outer wall 2 and a cavity 3 there between. In the cavity 3 a layer of insulation slabs 4 are fitted to the inner wall 1 by a number of wall anchors 5. The wall anchors 5 comprise a first mounting end 6 and an outermost second end 7 which is moulded into the mortar between the bricks of the outer wall 2. Each wall anchor 5 is mounted by a fastener 10, e.g. a dowel, which is threaded through a mounting hole 15 and shot into the wall by special tooling equipment (see fig. 4).

[0019] In fig. 2 to 4 there is shown an inner wall 1 with a layer of insulation slabs 4 mounted thereon by wall anchors 5. As indicated in fig. 2, the wall anchors 5 may be mounted for holding the insulation slabs 4 in both a vertical position and a horizontal position. The need for mounting the wall anchor in a vertical position may be at the top of the building, where the top edge of the top row of insulation slabs cannot be supported by this type of wall anchor because of the insulation holding means 12 penetrating into the insulation. Therefore, the wall anchor is placed between the neighbouring slabs in a vertical position. Because the wall anchor part has to be fixed

within the horizontal mortar layer between the bricks it has to be twisted in order to be able to do so.

[0020] The same problem occurs above and below openings for windows etc. The solution here is the same. Also at the lower part of the wall it may be necessary to apply wall anchors in vertical position. In some situations it may be necessary to supplement with more traditional rod shaped anchors placed in the inner part of the slabs.

[0021] As shown in fig. 2, the insulation slabs 4 are supported by a row of fibrous insulation bricks 9 arranged along the foot of the inner wall 1. This fibrous insulation brick 9 is preferably made of a fibrous insulation material with a high density. Along the foot of the inner wall 1, the insulation slabs 4 are fixed to the inner wall 1 by a series of holding members 8 that are fixed through the insulation 4 to the inner wall 1 by fasteners 10, e.g. dowels, whereby the holding members 8 are mounted in the same manner as the wall anchors 5 using the same type of fasteners 10 as used for mounting the wall anchors 5. Where the cavity wall includes corners between two wall portions, edge fix means may preferably also be used for fixating the insulation slabs.

[0022] In fig. 3, it can be seen how the insulation slabs 4 are fixed to the inner wall 1 by the wall anchors 5. The wall anchor 5 is formed in a sheet material and includes a first end 6 facing the inner wall 1 and a second end 7 projecting out between the insulation slabs 4. This second end 7 is formed with an outer tip 13. In the first end 6, a mounting flange 11 is formed by an upward bended mounting portion 11 which is provided with a mounting hole 15, which is provided in proximity to the bending line. In the intermediate portion 14 between the outer tip 13 and the mounting flange 11, projections 12 for gripping the insulation slabs 4 are formed.

[0023] With reference to fig. 4, the wall anchor 5 is positioned for mounting an insulation slab 4 to the inner wall 1 with the mounting flange 11 against the inner wall 1 and lowered, so the downward pointing projection 12 penetrates into the upper side of the insulation slab 4. The wall anchor 5 is then secured to the inner wall 1 by a mounting tool 16, which is provided with an elongated tube in which the fastener dowel 10 (see fig. 1) is placed and forced into the inner wall 1 through the mounting hole 15 on the wall anchor 5 by the mounting tool 16.

[0024] In fig. 5 a preferred embodiment of a wall anchor 5 according to the invention is shown. The wall anchor 5 is formed from a blank cut out of a sheet of steel material, preferably a steel sheet with a thickness of 1 mm. The blank is bent into the desired shape of the wall anchor 5. In the first end 6, a mounting flange 11 is formed by bending a portion to a generally vertical position. In this mounting flange 11 a mounting hole 15 is provided. The mounting flange extends into a bridging base portion 20 of a plate-like shape which rests against the insulation slab below and supports the above insulation slab. The base portion 20 extends into an elongated intermediate portion 14 with two pointed projections 12 on each side thereof, where one projection is pointing downwards and the other upwards. The elongated portion 14 is provided with a first rib 16, which protrude out of the generally planar bridging portion 20 and elongated portion 14. The first rib 16 is followed by a second rib 17 with a bending portion 18 between the two ribs 16, 17, so that the wall anchor 5 may be bent (see fig. 6) or twisted (see fig. 7 or 8) in this region, which is positioned in a distance from the mounting flange 11 which generally corresponds to the thickness of the insulation slabs. At the second end 7, the wall anchor 5 is provided with an outer tip 13, which is provided with V-shaped or C-shaped retention buckles 19 for providing a firm grip when sandwiched in the mortar between two brick layers. It is realised that the shape of the retention buckles 19 also could be provided in other shapes.

[0025] The insulation slabs used in a cavity wall according to the invention is preferably dual density fibrous insulation slabs. This facilitates the fixing of the insulation slabs. The insulation slabs are provided in standard sizes, e.g. 120x80 cm or 60x80 cm. By a wall anchor according to the present invention, only one wall anchor above and below each insulation slab is necessary to fix the insulation to the inner wall.

[0026] With a wall anchor according to the invention, it is found that an average of approx. 1.4 wall anchors per square meter is required. However, if the building is subjected to extraordinary wind loads, the average required is somewhat higher, approx. 2.0-2.5 wall anchors per square meter.

[0027] Above, the wall anchor 5 is described in relation to a horizontal position. However, directional terms, e.g. vertical, upwards and downwards is merely to be understood as relative terms, as it is realised that the wall anchor may be provided with other general orientations without departing from the scope of the invention.

Claims

1. A wall anchor (5) for a cavity wall, said wall anchor having a first end (6) mountable on an inner wall (1) of the cavity wall and a second end (7) for embedding into a mortar in an outer wall (2) of the cavity wall, whereby said wall anchor is adapted for bridging the cavity (3) between the inner and outer wall, for fixing insulation slabs (4) to the inner wall and for binding the outer wall to the inner wall, wherein the wall anchor is formed from a metal sheet material with a substantially vertical mounting flange (11) at its first end, an outer tip (13) at the second end and a bridging portion between said two ends, wherein the bridging portion is provided with a plate-like portion (20) with projections (12) on each side of an elongated portion (14) for gripping the insulation slabs.
   characterised in that
   at least two elongated longitudinal ribs (16,17) are formed in the bridging portion, said ribs projecting out of at least the elongated portion (14) of the plate-

like bridging portion, said ribs are formed in a line with a bendable and/or twistable portion (18) between said ribs.

2. A wall anchor according to claim 1, wherein the outer tip (13) of the wall anchor is provided with retention buckles (19), such as generally transversely orientated ribs relative to the orientation of the elongated portion.

3. A wall anchor according to claim 2, wherein the retention ribs (19) on the outer tip are generally V-shaped or C-shaped.

4. A wall anchor according to any of claims 1 to 3, wherein the ribs on the wall anchor are formed in a centre line of the elongated portion (14) of the bridging portion.

5. A wall anchor according to any of claims 1 to 4, wherein the wall anchor (5) is formed from a steel plate having a thickness of 0.7 to 1.5, more preferably 1 mm.

6. A cavity wall in a building structure, said cavity wall comprising:

an inner wall (1);
an outer wall (2) comprising a brick wall;
a cavity (3) between the inner and outer walls,
insulation (4) slabs mounted against the inner wall inside said cavity;
a plurality of wall anchors (5) each having a first end (6) mounted on the inner wall and a second end (7) embedded into a mortar in the outer wall, whereby said wall anchors bridge the cavity, fix the insulation slabs to the inner wall and bind the outer wall to the inner wall, wherein the wall anchors are formed from a metal sheet material with a substantially vertical mounting flange (11) at its first end (6) an outer tip (13) at the second end (7) and a bridging portion between said two ends, wherein the bridging portion is provided with a plate-like portion (20) with projections (12) on each side of an elongated portion (14) for gripping the insulation slabs.
characterised in that
at least one of the wall anchors comprises at least two elongated longitudinal ribs (16,17) formed in the bridging portion, said ribs projecting out of at least the elongated portion (14) of the plate-like bridging portion, said ribs being formed in a line with a bendable and/or twistable portion (18) between said ribs.

7. A cavity wall according to claim 6, wherein three, preferably two or less wall anchors (5) per square meter are provided, more preferably an average of 1.4-2.5 wall anchors per square meter.

8. A cavity wall according to claim 6 or 7, wherein at least one of the wall anchors (5) is mounted with a substantially horizontal orientation of the plate-like portion (20).

9. A cavity wall according to any of claims 6 to 8, wherein at least one of the wall anchors (5) is mounted with a substantially vertical orientation of the plate-like portion (20).

10. A cavity wall according to any of claims 6 to 9, wherein the wall anchors (5) are mounted on the inner wall (1) by an elongated fastener (10) mounted through a mounting hole (15) in the wall anchors, which is positioned centrally on at the base of the mounting flange.

11. A cavity wall according to any of claims 6 to 10, wherein the insulation slabs (4) are fixed at their peripheral regions, e.g. bottom and top regions, by a series of insulation holding members (8), where said holding member are positioned on insulation edge region and fixed to the inner wall by elongated fasteners which are penetrated through a mounting hole in the holding member and through the underlying the insulation slab.

12. A cavity wall according to claim 11, wherein a series of fibrous insulation bricks (9) having a relative high density is provided at the foot of the inner wall (1) for supporting the insulation slabs.

13. A cavity wall according to any of claims 6 to 12, wherein the bendin portion (18) of the at least one walt anchor (5) is provided at a distance from the mounting flange (11) which generally corresponds to the thickness of the insulation slab (4).

Patentansprüche

1. Maueranker (5) für eine Hohlwand, wobei der Maueranker ein erstes Ende (6) aufweist, das an einer Innenwand (1) der Hohlwand anbringbar ist und ein zweites Ende (7) aufweist zum Einbetten in einen Mörtel in einer Außenwand (2) der Hohlwand, wodurch der Maueranker in der Lage ist, den Hohlraum (3) zwischen der inneren und der äußeren Wand zu überbrücken, zur Fixierung von Dämmplatten (4) an der Innenwand, und zum Anbinden der Außenwand an die Innenwand, wobei der Maueranker aus einem Metallplattenmaterial gebildet ist, mit einem im Wesentlichen vertikalen Montageflansch (11) an seinem ersten Ende, und einer äußeren Spitze (13) an seinem zweiten Ende und einem Brückenabschnitt zwischen den beiden Enden, wobei der Brückenab-

schnitt mit einem plattenartigen Abschnitt (20) versehen ist, mit Vorsprüngen (12) auf jeder Seite eines länglichen Abschnitts (14), zum Greifen der Dämmplatten,
dadurch gekennzeichnet,
dass wenigstens zwei längliche Längsrippen (16, 17) in dem Brückenabschnitt ausgebildet sind, wobei die Rippen nach außen von wenigstens einem länglichen Abschnitt (14) des plattenartigen Brückenabschnitts vorspringen, wobei die Rippen in einer Linie mit einem neigbaren und/oder verdrehbaren Abschnitt (18) zwischen den Rippen angeordnet sind.

2. Maueranker nach Anspruch 1, wobei die äußere Spitze (13) des Maueranker mit Rückhalteverschlüssen (19) versehen ist, wie allgemein quer orientierte Rippen bezogen auf die Ausrichtung des länglichen Abschnitts.

3. Maueranker nach Anspruch 2, wobei die Rückhalterippen (19) auf der äußeren Spitze im Allgemeinen V-förmig oder C-förmig sind.

4. Maueranker nach einem der Ansprüche 1 bis 3, wobei die Rippen auf dem Maueranker in einer Mittellinie des länglichen Abschnitts (14) des Brückenabschnitts ausgebildet sind.

5. Maueranker nach einem der Ansprüche 1 bis 4, wobei der Maueranker (5) aus einer Stahlplatte gebildet ist, die eine Dicke von 0,7 bis 1,5, bevorzugter 1 mm aufweist.

6. Hohlwand in einer Gebäudestruktur, wobei die Hohlwand aufweist:

eine Innenwand (1);
eine Außenwand (2), die eine Ziegelwand aufweist;
einen Hohlraum (3) zwischen der Innenwand und der Außenwand,
Dämmplatten (4), die gegen die Innenwand innerhalb des Hohlraums angebracht sind;
eine Mehrzahl von Mauerankern (5), von denen jeder ein erstes Ende (6), das auf der Innenwand montiert ist und ein zweites Ende (7) aufweist, das in einem Mörtel in der Außenwand eingebettet ist, wodurch die Maueranker den Hohlraum überbrücken, die Dämmplatten an der Innenwand befestigen und die Außenwand an die Innenwand binden, wobei die Maueranker aus einem Metallplattenmaterial gebildet sind, mit einem im Wesentlichen vertikalen Montierflansch (11) an seinem ersten Ende (6) und einer äußeren Spitze (13) an dem zweiten Ende (7), und einen Brückenabschnitt zwischen beiden Enden aufweist, wobei der Brückenabschnitt mit einem plattenartigen Abschnitt (26) versehen wird, mit Vorsprüngen (12) auf einer jeden Seite eines länglichen Abschnitts (14), um die Dämmplatten zu ergreifen,
dadurch gekennzeichnet,
dass wenigstens einer der Maueranker wenigstens zwei längliche Längsrippen (16, 17) aufweist, die in dem Brückenabschnitt ausgebildet sind, wobei die Rippen nach außen von wenigstens dem länglichen Abschnitt (14) des plattenartigen Brückenabschnitts vorspringen, wobei die Rippen in einer Linie mit einem schwenkbaren und/oder drehbaren Abschnitt zwischen den Rippen ausgebildet sind.

7. Hohlwand nach Anspruch 6, wobei drei, bevorzugt zwei oder weniger Maueranker (5) pro Quadratmeter, bevorzugter in einem Durchschnittswert von 1,4 bis 2,5 Maueranker pro Quadratmeter vorgesehen sind.

8. Hohlwand nach Anspruch 6 oder 7, wobei wenigstens einer der Maueranker (5) mit einer im Wesentlichen horizontalen Ausrichtung des plattenartigen Abschnitts (20) angebracht ist.

9. Hohlwand nach einem der Ansprüche 6 bis 8, wobei wenigstens einer der Maueranker (5) in einer im Wesentlichen vertikalen Ausrichtung des plattenartigen Abschnitts (20) angebracht ist.

10. Hohlwand nach einem der Ansprüche 6 bis 9, wobei die Maueranker (5) an der Innenwand (1) durch einen länglichen Halter (16) angebracht sind, der durch eine Anbringöffnung (15) in den Maueranker angebracht ist, die zentral auf der Basis des Anbringflansches positioniert ist.

11. Hohlwand nach einem der Ansprüche 6 bis 10, wobei die Dämmplatten (4) an ihren Umfangsbereichen, bspw. Boden- oder Spitzenbereichen mittels einer Mehrzahl von Dämmungshalteelementen (8) befestigt sind, wo das Halteelement auf dem Dämmrandbereich positioniert und an der Innenwand mittels länglichen Haltern befestigt ist, die sich durch eine Montageöffnung in dem Halteelement und durch die darunter liegende Dämmplatte erstrecken.

12. Hohlwand nach Anspruch 11, wobei eine Reihe von faserigen Dämmsteinen (9), die eine relativ hohe Dichte aufweisen, am Bodern der Innenwand (1) vorgesehen ist, um die Dämmplatten abzustützen.

13. Hohlwand nach einem der Ansprüche 6 bis 12, wobei der Biegeabschnitt (18) des wenigstens einen Maueranker (5) mit einem Abstand von dem Anbringflansch (11) vorgesehen ist, der allgemein der Dicke der Dämmplatten (4) entspricht.

Revendications

1. Ancrage de mur (5) pour un mur creux, ledit ancrage de mur ayant une première extrémité (6) pouvant être montée sur un mur interne (1) du mur creux et une deuxième extrémité (7) destinée à être encastrée dans un mortier dans le mur externe (2) du mur creux, moyennant quoi ledit ancrage de mur est adapté pour relier la cavité (3) entre les murs interne et externe, pour fixer des dalles d'isolation (4) sur le mur interne et pour relier le mur externe au mur interne, dans lequel l'ancrage de mur est formé à partir d'un matériau en tôle avec un rebord de montage sensiblement vertical (11) au niveau de sa première extrémité, une pointe externe (13) au niveau de la deuxième extrémité et une partie de liaison entre les deux extrémités, dans lequel la partie de liaison est prévue avec une partie en forme de plaque (20) avec des saillies (12) sur chaque côté d'une partie allongée (14) pour saisir les dalles d'isolation,
caractérisé en ce que :

au moins deux nervures longitudinales allongées (16, 17) sont montées dans la partie de liaison, lesdites nervures faisant saillie d'au moins la partie allongée (14) de la partie de liaison en forme de plaque, lesdites nervures sont formées sur une ligne avec une partie pouvant se fléchir et/ou se tordre (18) entre lesdites nervures.

2. Ancrage de mur selon la revendication 1, dans lequel la pointe externe (13) de l'ancrage de mur est prévue avec des boucles de retenue (19) telles que des nervures orientées généralement de manière transversale, par rapport à l'orientation de la partie allongée.

3. Ancrage de mur selon la revendication 2, dans lequel les nervures de retenue (19) sur la pointe externe sont généralement en forme de V ou en forme de C.

4. Ancrage de mur selon l'une quelconque des revendications 1 à 3, dans lequel les nervures sur l'ancrage de mur sont formées sur une ligne centrale de la partie allongée (14) de la partie de liaison.

5. Ancrage de mur selon l'une quelconque des revendications 1 à 4, dans lequel l'ancrage de mur (5) est formé à partir d'une plaque d'acier ayant une épaisseur de l'ordre de 0,7 à 1,5, encore de préférence 1 mm.

6. Mur creux dans une structure de bâtiment, ledit mur creux comprenant :

un mur interne (1) ;
un mur externe (2) comprenant un mur de briques ;
une cavité (3) entre les murs interne et externe,
des dalles d'isolation (4) montées contre le mur interne à l'intérieur de ladite cavité,
une pluralité d'ancrages de mur (5) ayant chacun une première extrémité (6) montée sur le mur interne et une deuxième extrémité (7) encastrée dans un mortier dans le mur externe, moyennant quoi lesdits ancrages de paroi relient la cavité, pour fixer les dalles d'isolation sur le mur interne et relier le mur externe au mur interne, dans lequel les ancrages de mur sont formés à partir d'un matériau en tôle avec un rebord de montage sensiblement vertical (11) au niveau de sa première extrémité (6), une pointe externe (13) au niveau de la deuxième extrémité (7) et une partie de liaison entre lesdites deux extrémités, dans lequel la partie de liaison est prévue avec une partie en forme de plaque (26) avec des saillies (12) de chaque côté d'une partie allongée (14) pour saisir les dalles d'isolation,
caractérisé en ce que :
au moins l'un des ancrages de mur comprend au moins deux nervures longitudinales allongées (16, 17) formées dans la partie de liaison, lesdites nervures faisant saillie d'au moins la partie allongée (14) de la partie de liaison en forme de plaque, lesdites nervures étant formées sur une ligne avec une partie pouvant être fléchie et/ou tordue (18) entre les nervures.

7. Mur creux selon la revendication 6, dans lequel trois, de préférence deux ou moins ancrages de mur (5) par mètre carré sont prévus, encore de préférence une moyenne de 1,4-2,5 ancrages de paroi par mètre carré.

8. Mur creux selon la revendication 6 ou 7, dans lequel au moins l'un des ancrages de mur (5) est monté avec une orientation sensiblement horizontale de la partie en forme de plaque (20).

9. Mur creux selon l'une quelconque des revendications 6 à 8, dans lequel au moins l'un des ancrages de mur (5) est monté avec une orientation sensiblement verticale de la partie en forme de plaque (20).

10. Mur creux selon l'une quelconque des revendications 6 à 9, dans lequel les ancrages de mur (5) sont montés sur le mur interne (1) par une fixation allongée (10) montée à travers un trou de montage (15) dans les ancrages de mur, qui est positionné de manière centrale à la base du rebord de montage.

11. Mur creux selon l'une quelconque des revendications 6 à 10, dans lequel les dalles d'isolation (4) sont fixées au niveau de leurs régions périphériques, par exemple les régions inférieure et supérieure, par

une série d'éléments de support d'isolation (8), où lesdits éléments de support sont positionnés sur la région de bord d'isolation et fixés sur le mur interne par des fixations allongées qui pénètrent par un trou de montage dans l'élément de support et par la face inférieure de la dalle d'isolation.

12. Mur creux selon la revendication 11, dans lequel une série de briques isolantes fibreuses (9) ayant une densité relativement élevée est prévue à la base du mur interne (1) pour supporter les dalles d'isolation.

13. Mur creux selon l'une quelconque des revendications 6 à 12, dans lequel la partie de flexion (18) du au moins un ancrage de mur (5) est prévue à une distance du rebord de montage (11) qui correspond généralement à l'épaisseur de la dalle d'isolation (4).

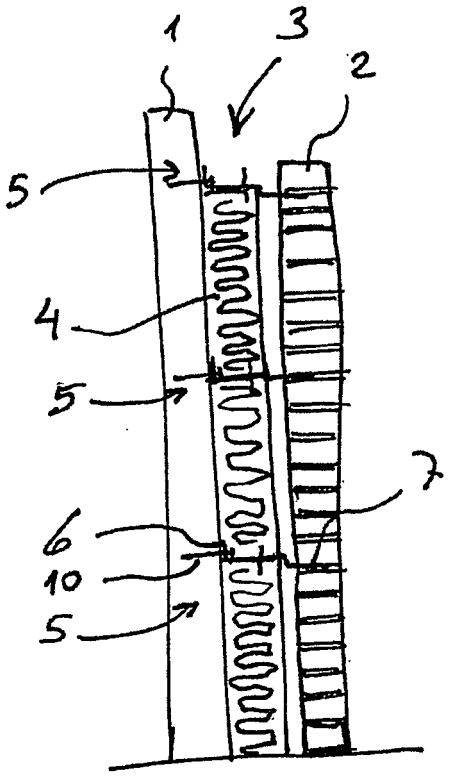

Fig. 1

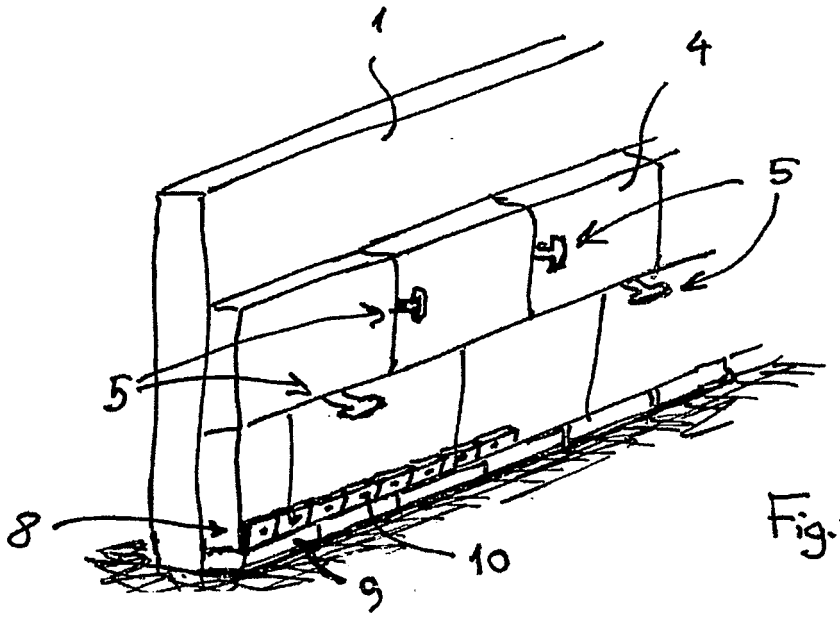

Fig. 2

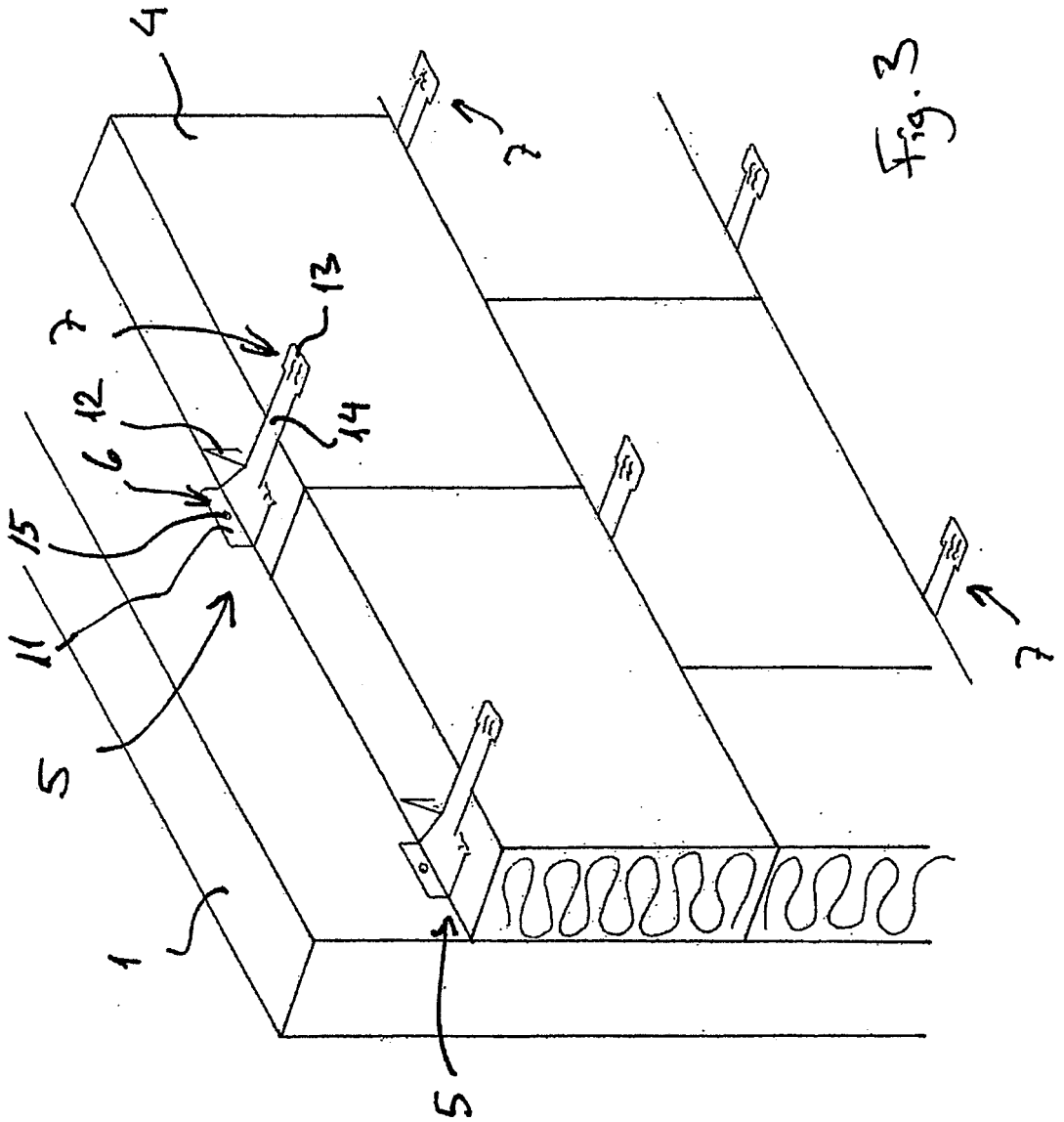

Fig. 3

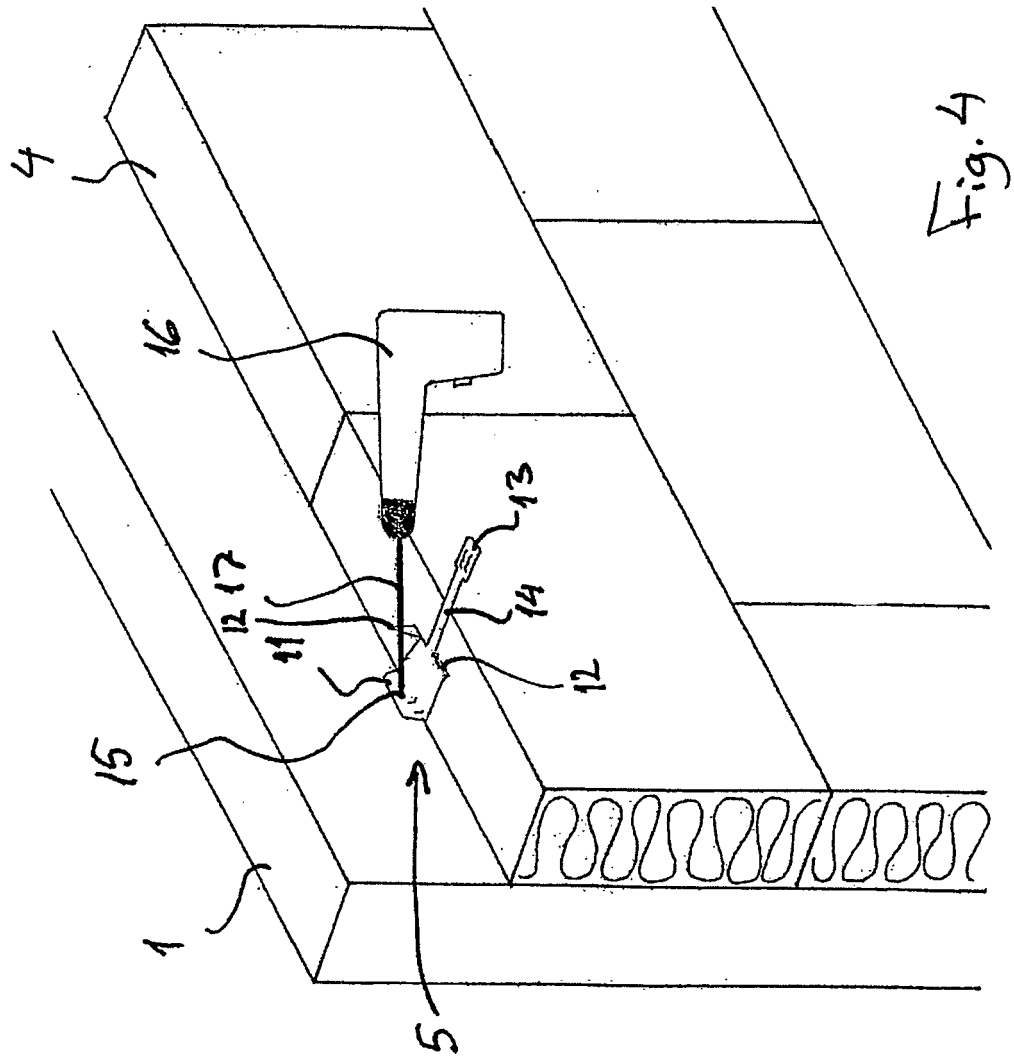

Fig. 4

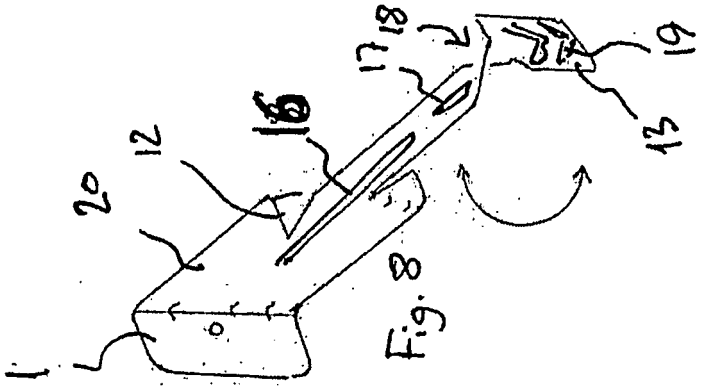

Fig. 8

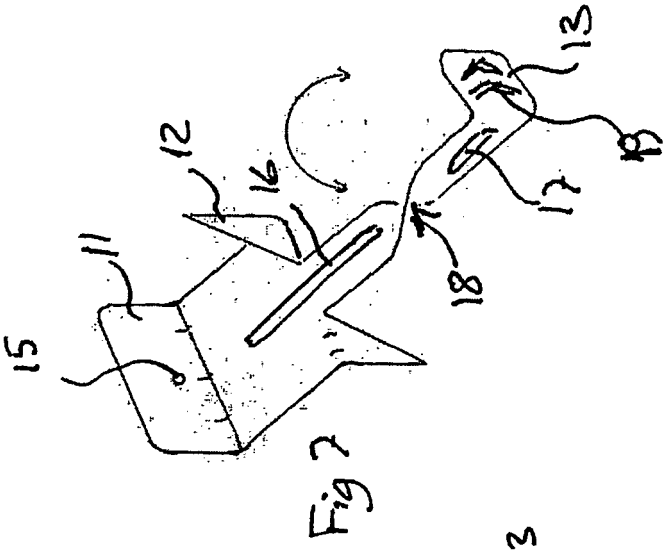

Fig. 7

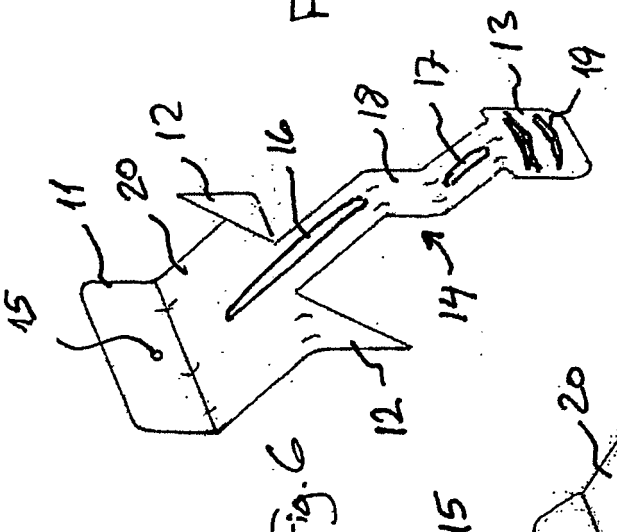

Fig. 6

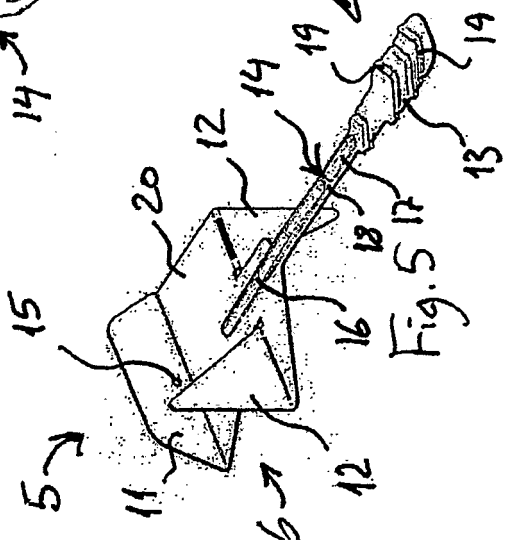

Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- EP 1510629 A **[0002]**
- GB 2111095 A **[0003]**