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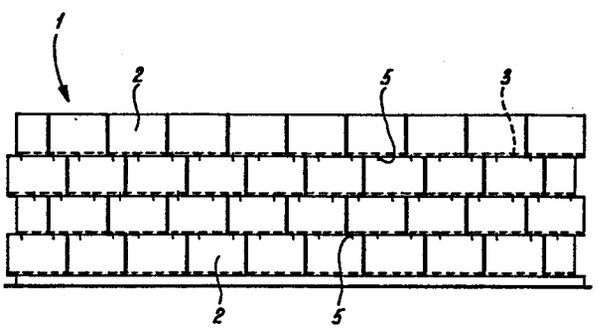
(54) Wall.

(57) A wall comprising a number of building blocks or elements (2) is formed by laying successive courses next to and on each other. The blocks or elements (2) are provided, at least at their horizontal contact faces, with connection means comprising for each block or element at least one longitudinal groove (3) in at least one of the two horizontal surfaces, at least one recess having a vertical centre line disposed in the vertical central plane of the groove and leading out into the other horizontal surface, together with a pin (5) which fits into the recess. If the pin (5) is fitted into the recess it has an outwardly projecting part which fits into the groove (3) of an adjoining block or element (1). The blocks or elements (1) are in addition joined together by mortar.



EP 0 135 972 A2

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Wall.

The invention relates to a wall consisting of a number of building blocks or elements which are laid in successive courses next to and on one another, and which are provided, at least at their horizontal contact surfaces, with connection means and in addition are joined together by mortar.

Walls constructed with blocks or elements of, for example, calcareous sandstone, bonded together with the aid of an adhesive mortar are widely known from building practice.

It is also known to use a mechanical block layer with the aid of which, after adhesive mortar has been applied to the bottom course of blocks, the following course lying thereon is laid, the arrangement of the joints (at right angles to the horizontal surface) being taken into account. In this way the entire wall can be erected. This method of stacking, however, has the disadvantage that an adequately level wall is not always obtained because of the slipping of the blocks after they have been positioned and before the adhesive mortar has set.

In order to obviate this disadvantage, for the laying of courses of calcareous sandstone blocks centrally in the horizontal plane relative to one another, use is made of tongue and groove joints, a groove being provided in one of the two horizontal surfaces of each block, while the other horizontal surface is provided with a tongue, in such a manner that the tongues and

grooves of successive courses engage one in the other. A layer of adhesive mortar is then applied to the surface of the blocks.

Both when tongues and grooves are used, and even more so when they are not used, it is impossible or difficult to make an even wall, because with tongues and grooves, play is in fact necessary and tolerances occur.

This shortcoming also exists when a mechanical block layer is used.

The previous disadvantage of the slipping of elements is thus not completely eliminated, so that with this method of stacking an adequately even wall is not always achieved.

The invention seeks to avoid the disadvantages arising in the stacking of blocks or elements according to the prior art.

According to the invention this aim is achieved in that, in a wall of the type defined above, the connection means for each block or element are formed by at least one longitudinal groove in at least one of the two horizontal surfaces, at least one recess having a vertical centre line disposed in the vertical central plane of the groove, and leading out into the other horizontal surface, together with a pin which fits into the recess and, when fitted therein, has an outwardly projecting part which fits into the groove of an adjoining block or element.

Through the fitting of pins into recesses, during

the construction of the wall, that is to say in the laying of each block or element, centering is effected immediately, so that an even wall is always obtained. It is not detrimental for adhesive mortar to penetrate into the longitudinal groove, because the pin is quite able to push this asdhesive mortar away locally.

In one advantageous embodiment the groove or grooves has or have a section which tapers transversely to the longitudinal axis of the block or element. In this way the centering action of the pin in the groove is improved.

In another advantageous embodiment the groove or grooves is or are disposed in the bottom surface of the blocks or elements. Adhesive mortar can thus be prevented from penetrating into the grooves before the blocks or elements are laid.

According to another embodiment, at least two recesses for the pins are provided in a horizontal surface in each block or element. Through the use of at least two pins in openings in a horizontal surface, a very good centering action is obtained.

In another advantageous embodiment, the recesses for the pins are formed by grooves in the end faces of the blocks or elements. This embodiment is of advantage when for technical reasons of manufacture it is difficult to make openings in the blocks or elements but simple to make longitudinal grooves in the end surfaces of the blocks or elements, in which case two longitudinal grooves in end surfaces of the blocks,

lying one against the other, together form a recess.

According to another advantageous embodiment, each opening is provided, at the point where it leads out into the horizontal surface of the block or element, with a bevelled edge on its periphery. It is thus possible for adhesive mortar to penetrate between the pin and the actual joint, thus contributing towards the further stiffening of the bond.

According to another embodiment, the blocks or elements have a tongue and groove joint on their end faces. Centering is thus considerably facilitated and therefore accelerated, and in addition the acoustic insulating properties of the wall built can be improved.

In another advantageous embodiment, each block or element has in its bottom face a single groove of trapezium-shaped section, the top surface of each block or element has two tapering bores, and the pins are rotationally symmetrical with a tapering part which fits into the tapering part of the bores and have a bevelled conical end of which the apex angle corresponds to the angle between the side surfaces of the groove. In this way the pins can simply be placed in the bores intended for them, and an advantageous centering action is obtained through the fact that the side surfaces of the groove are bevelled to correspond to the pin.

In another advantageous embodiment the pins consist of a plastics material. The pins can thus have advantageous properties in respect of life, strength

and deformability.

Preferred embodiments of the wall with connection means will be described below, as examples, with reference to the drawings, in which:

Figure 1 is a side view of the built-up wall, in which the pins disposed in the blocks are indicated diagrammatically,

Figure 2 is a cross-section of a block in the built-up wall shown in Figure 1, taken at the point where a pin is disposed,

Figure 3 is a cross-section of the parts, lying at the interface of two blocks, taken at the point where a centering means is disposed,

Figure 4 shows diagrammatically the positioning of the pins in the grooves in a wall of the kind shown in Figure 1, built up of blocks, in which however the grooves in which the pins are engaged are provided on upper face of the blocks,

Figure 5 is a side view of a built-up wall in section, in which the openings for the pins are formed by providing matching slots in the end faces of the blocks,

Figure 6 is a top view of the wall shown in Figure 5,

Figure 7 is a side view of the end face of a block provided with a slot, with, in section, a block disposed thereabove and having a groove for receiving pin, and

Figure 8 is a top view of a stacked course of

blocks at the point where a tongue-and-groove joint is provided in the end faces.

In Figure 1, the wall 1 is constructed of blocks 2, which are laid in courses staggered relative to one another in order to obtain a bond. Figure 2 shows the cross-section of a block 2. In the bottom face of the block is formed a through groove 3, which in this example lies in the middle relative to the longitudinal direction of the block and extends over all the blocks of a course. In the upper face of the block 2 an opening 4, bevelled at the top, is shown in section, and in it a pin 5 is disposed. As can be seen in Figure 1, each block 2 is provided with two openings 4 and pins 5, each pin engaging in a different block disposed above it. The relation between the groove 3, the opening 4 and the pin 5 is shown more clearly, at the site of a joint, in Figure 3, which shows the engagement of the pin 5. In addition, adhesive mortar 6 is shown between two blocks. This adhesive mortar also penetrates into the bevelled part of the opening 4 at the mouth of the latter on the horizontal surface of the block. In Figure 4 is shown a wall in which, in contrast to the wall shown in Figures 1 to 3, the groove is situated in the upper face of an underlying block.

Figures 5, 6 and 7 show in various views a special way of forming the opening for the pin 5. In this case two adjoining blocks are provided on each end face with a slot 7. When the end faces are laid one

against the other, the pairing of the slots forms a recess to receive the pins 5. This construction is above all advantageous when for technical reasons of manufacture it is difficult to form an opening in the blocks, whereas the provision of a slot is substantially simpler. This is, for example, the case in the production of so-called chine blocks, i.e. blocks used in conjunction with calcareous sandstone elements to achieve suitability for high walls.

Figure 8 shows a top view of a special embodiment of the blocks. Here each block is provided on a vertical side face, adjoining the side of an adjacent block, with a groove 9 and, on the opposite side face, with a tongue 8 of complementary shape. By interengaging the groove 9 of one block and the tongue 8 on the other block, a centering effect in the vertical direction is achieved. In addition, this arrangement provides the advantage of a soundinsulting effect through the tongue-and-groove joint.

It should be realised that what is shown in the drawings will serve only as an example. Thus, for example, a plurality of grooves may be provided on one or more sides of the blocks, or a groove may be disposed eccentrically.

The invention is obviously not restricted solely to the use of blocks of e.g. calcareous sandstone or other material such as concrete, but larger elements may also be made of suitable material such as for example concrete and cellular concrete.

CLAIMS.

1. Wall consisting of a number of building blocks or elements which are laid in successive courses next to and on one another and which are provided, at least at their horizontal contact faces, with connection means and in addition are joined together by mortar, characterised in that these connection means for each block or element are formed by at least one longitudinal groove (3) in at least one of the two horizontal faces, at least one recess (4) having a vertical centre line disposed in the vertical central plane of the groove (3), and leading out into the other horizontal face, together with a pin which fits into the recess (4) and, when fitted therein, has an outwardly projecting part which fits into the groove (3) of an adjoining block or element (1).

2. Wall according to claim 1, characterised in that, in a section transverse to the longitudinal axis of the block or element, the groove or grooves (3) has or have a tapering section.

3. Wall according to claim 1 or 2, characterised in that the groove or grooves (3) is or are disposed in the bottom face of the blocks or elements (1).

4. Wall according to one or more of claims 1 to 3, characterised in that each block or element (1) has two recesses (3) in one horizontal plane.

5. Wall according to claim 4, characterised in that the recesses (4) are formed by grooves (3) in the end faces of the blocks or elements.

6. Wall according to claim 4, characterised in that the recesses (4) are formed by bores having tapering side walls.

7. Wall according to claim 6, characterised in that at the point where it leads out into the horizontal face of the block or element, each bore has a bevelled edge on its periphery.

8. Wall according to one or more of the preceding claims, characterised in that the blocks or elements have a tongue-and-groove joint (8,9) on their end faces.

9. Wall according to one or more of the preceding claims 1 to 4 and 6 to 8, characterised in that each block or element (1) has in its lower face a single groove (3) of trapezium-shaped section, the top face of each block or element (1) has two tapering bores, and the

pins are rotationally symmetrical pins with a tapering part which fits into the tapering part of the bores and a truncated conical end of which the apex angle corresponds to the angle between the side faces of the groove.

10. Wall according to one or more of the preceding claims, characterised in that the pins (5) are made of plastics material.

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Fig-1

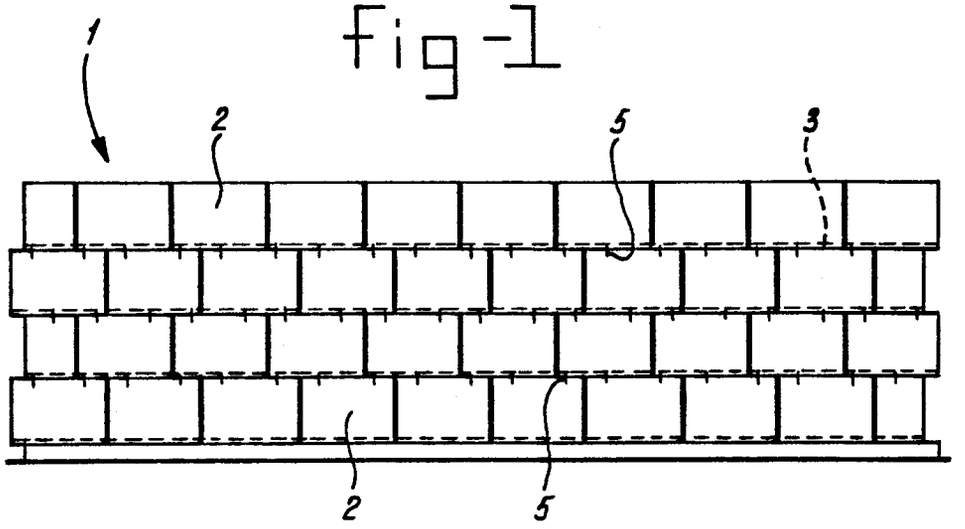

Fig-2

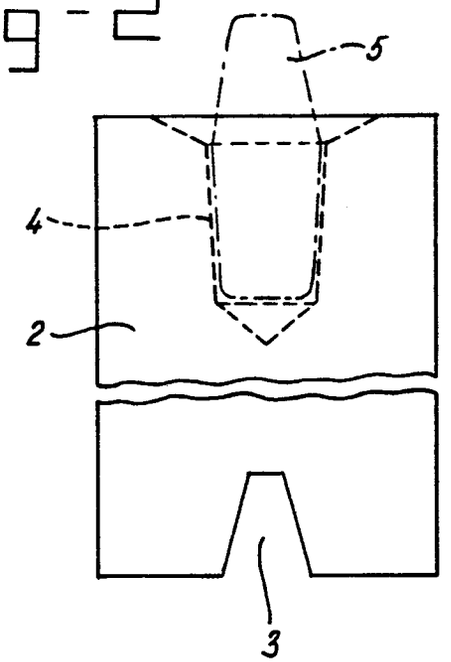

Fig-3

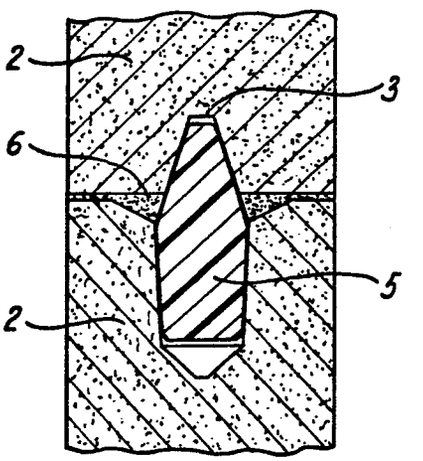

Fig-4

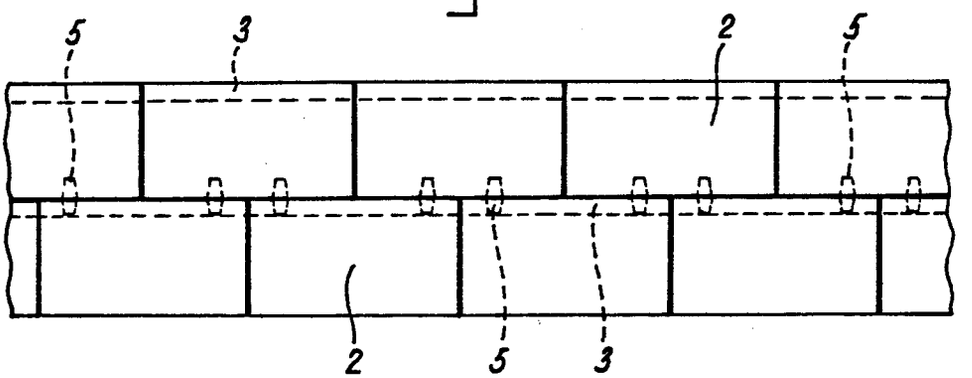

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Fig-5

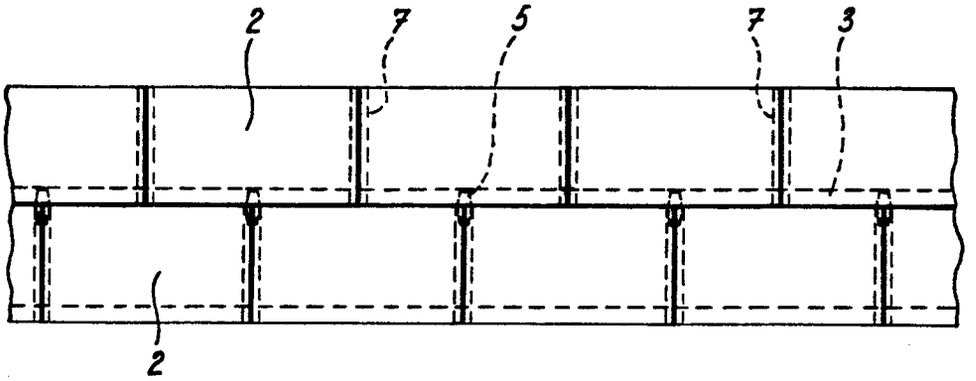

Fig-6

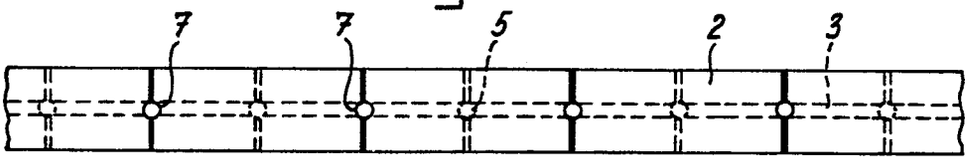

Fig-7

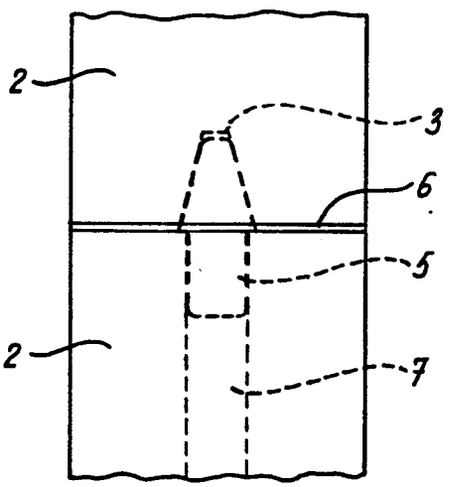

Fig-8