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(54) Process for producing tiles or other similar products formed from blocks of stone, even fissured

(57) Concerns a procedure for producing tiles or other similar products, formed from blocks (1) of stone, even fissured, material straight from the quarry and which has substantial defects within the mass, such as cuts, chinks and the like. Such a procedure is characterised in that it comprises, in order, the following treatment steps:

1: cutting of the quarried block to form blanks (3);

2: coating the two larger surfaces of the blank;

3: cutting the resin-coated blank to obtain tiles (6).

The procedure also foresees that, during the cutting steps, both the blank and the tiles be locked on the support frame (7) through the action of a plurality of combs (8).

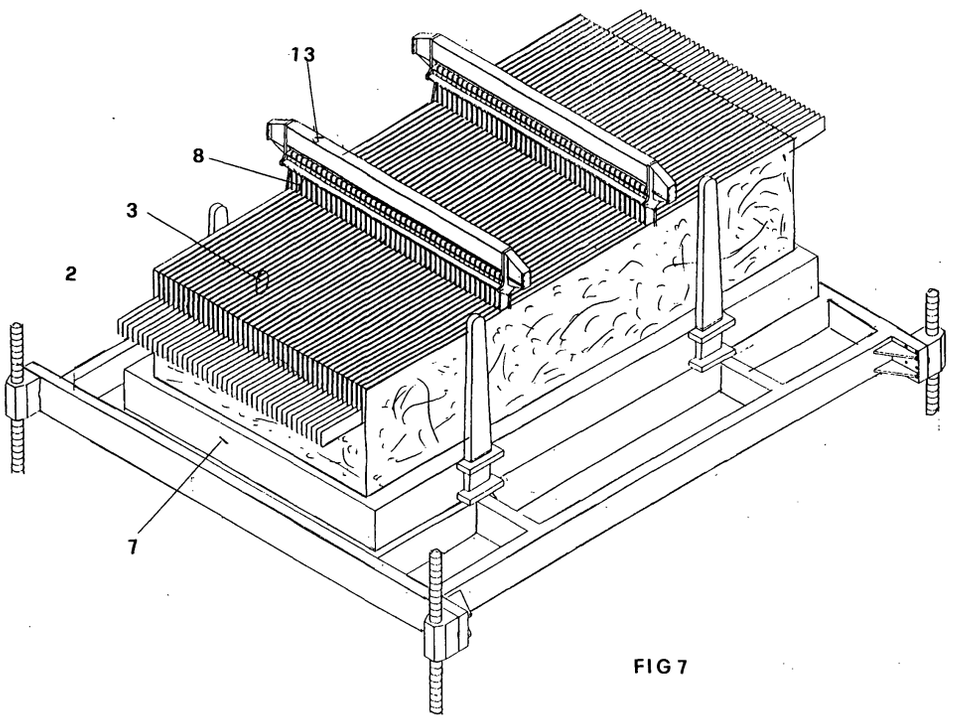

FIG 7

EP 1 358 985 A2

Description

[0001] The present finding regards a procedure for producing tiles formed from blocks of stone material and even fissured material.

[0002] The cutting of blocks of marble, granite or other stone materials takes place with two types of machine: ones using a disk-saw or ones using a diamond-tipped blade.

[0003] In machines with a diamond-tipped blade the block of stone material, straight from the quarry, is placed on a platform, above which blades move, equipped with alternating rectilinear motion and actuated by a normal device with a connecting rod and crank.

[0004] As is well known to those who work in the treatment of stone materials, one of the problems to be solved is that of reducing to the minimum the scrap which is created when the block arranged to be cut is of the so-called "fissured" type, since it has substantial defects within the mass, such as cuts, chinks and the like.

[0005] The purpose of the present finding is that of describing a cutting procedure which allows even stone blocks which are substantially defective, straight from the quarry, to be treated, to form products such as tiles.

[0006] Such an innovative procedure can advantageously be realised through the use of machines with a multiblade frame, which are well known in the state of the art, like those described, for example, in patent documents nos. VI93A000153, VI94A000051 and VI95A000157.

[0007] The procedure according to the finding foresees the following treatment steps, in order:

Step 1 - cutting the quarried block to form blanks:
the quarried block, substantial in size, in the order of a few cubic metres (for example 2.80m x 1.80m x 1.80m) is placed onto the machine with a multiblade frame to undergo the cutting from which a plurality of blanks with an equal surface (2.80m x 1.80m), but with a thickness of a few tens of centimetres (for example 30cm) are formed;

step 2 - coating the two larger surfaces of the blanks:
on the two larger surfaces of the blank a layer of resin is spread which, penetrating a few centimetres into the blank, has the dual function of filling and/or repairing possible chinks and irregularities in the surface, as well as of reinforcing the entire blank;

step 3 - cutting the resin-coated blank to obtain tiles:
the resin-coated blank is then placed on another machine with a multiblade frame, particularly suitable for the purpose which works according to the claimed procedure, where it is subdivided into tiles with dimensions corresponding to the base and to the height of the blank (for example 280cm x 30cm) but with the thickness of a few centimetres (for example 1.2cm or to suit requirements).

[0008] Operatively, the finding foresees that during the cutting steps the block of marble or the blank are always perfectly locked on the support frame.

[0009] This is realised by arranging, above the block or blank being cut, a plurality of combs the teeth of which are equipped with pressers which uniformly press upon the upper surface of the blank, even if said surfaces are not perfectly flat since said pressers can displace vertically in an independent manner, to adapt to the irregularities of the surface.

[0010] Such pressers consist of one or more small pistons preloaded with oil or grease, communicating with each other so as to balance the pressure on each individual presser.

[0011] Finally, the procedure according to the finding foresees that the combs be mounted on beams, preloaded by an oleodynamic device and capable of sliding vertically, so as to be able to be positioned precisely above the blank to be cut, as well as to be able to be lifted together with the aforementioned blank during cutting.

[0012] The finding shall be better understood by referring to the attached tables of drawings, wherein:

- figs. 1-3 (Tav. 1) represent the steps in order of the procedure according to the finding;
- figs. 4-6 represent the products of each step of the procedure;
- fig. 7 (Tav. III) represents a perspective view of the cutting group;
- figs. 8 and 9 (Tav. IV) respectively represent front and side views of the system for locking the product being cut.

[0013] As can be seen in the figures of Tav. 1, the quarried block 1 is placed on the machine with a multiblade frame 2 to undergo the cutting from which a plurality of blank 3 are formed.

[0014] Then, on the two larger surfaces 4', 4'' of the blank 3 a layer of resin 5 is spread which, penetrating a few centimetres into the block, functions as a filler/repairer, as well as reinforcer of the entire blank.

[0015] After this, the resin-coated blank is again placed onto the multiblade frame 2 where it is subdivided into tiles 6.

[0016] As can be seen in fig. 7, during the cutting steps the blank 3 is locked on the support frame 7 through the action of a plurality of combs 8.

[0017] As can be seen in figs. 8 and 9, the teeth 9 of the combs are equipped with pressers 10 which press uniformly on the surface 11, even if it has an irregular profile.

[0018] Said pressers 10 consist of small pistons 12

using oil or grease which communicate with each other.

[0019] Finally, the combs 8 are mounted on beams 13 which can slide vertically so as to be able to be positioned precisely above the product to be cut, as well as to be able to be lifted together with the product itself during cutting.

Claims

1. PROCEDURE FOR PRODUCING TILES OR OTHER SIMILAR PRODUCTS FORMED FROM BLOCKS OF STONE, EVEN FISSURED, MATERIAL, straight from the quarry and which has substantial defects within the mass, such as cuts, chinks and the like,
   said procedure being **characterised in that** it has the following treatment steps, in order:

   Step 1 - cutting the quarried block to form blanks:
   the quarried block, substantial in size, in the order of a few cubic metres (for example 2.80m x 1.80m x 1.80m) is placed onto the machine with a multiblade frame to undergo the cutting from which a plurality of blanks with an equal surface (2.80m x 1.80m), but with a thickness of a few tens of centimetres, are formed;

   step 2 - coating the two larger surfaces of the blank:
   on the two larger surfaces of the blank a layer of resin is spread which, penetrating a few centimetres into the blank, has the dual function of filling and/or repairing possible chinks as well as of reinforcing the entire blank;

   step 3 - cutting the resin-coated blank to obtain tiles:
   the resin-coated blank is placed on a specially-configured machine with a multiblade frame, where it is subdivided into tiles with dimensions corresponding to the base and to the height of the blank (for example 280cm x 30cm) but with the thickness of a few centimetres.

2. PROCEDURE, according to claim 1, **characterised in that** it foresees that during the cutting steps, both the blank and the tiles produced are locked on the support frame through the action of a plurality of combs the teeth of which are equipped with pressers which press uniformly upon the surface of the stone products themselves, even if they have surfaces which are not perfectly flat.

3. PROCEDURE, according to claim 2, **characterised in that** the pressers can position themselves in an independent manner, to adapt to the irregularities of the surface of the product being cut.

4. PROCEDURE, according to claim 3, **characterised in that** the pressers, consisting of the small pistons using oil or grease, communicate with each other and are fed by a single circuit equipped with a pump and a pressure compensator, so as to balance the pressure on the individual pressers.

5. PROCEDURE, according to claim 2, **characterised in that** the combs, mounted on beams, preloaded by an oleodynamic device, can slide vertically so as to be able to be positioned precisely above the product to be cut, as well as to be able to be lifted together with the product itself during cutting.

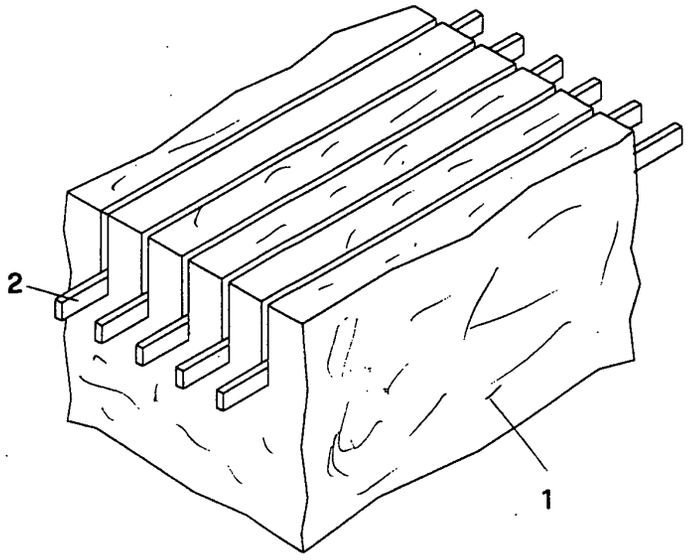

FIG.1

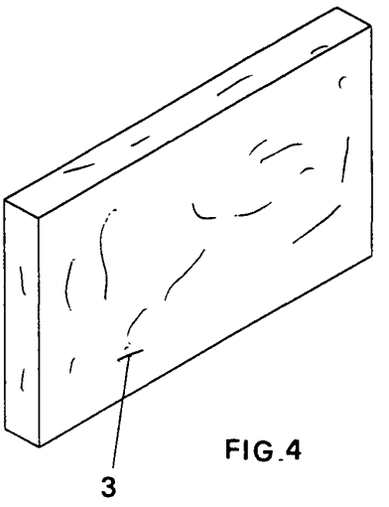

FIG.4

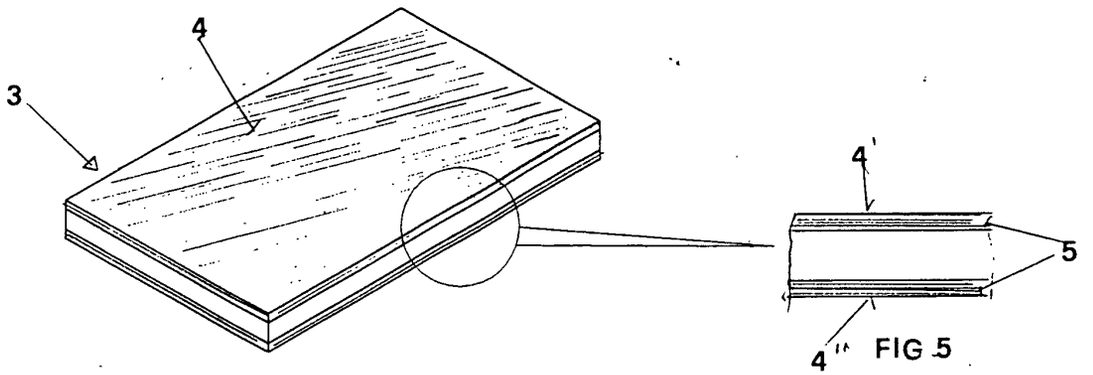

FIG.2

FIG.5

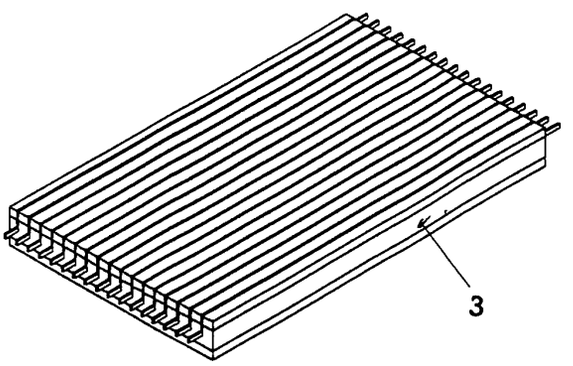

FIG.3

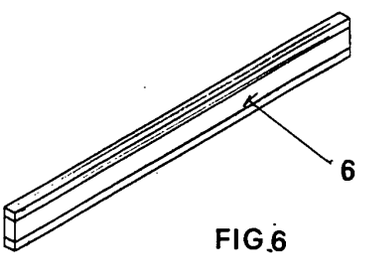

FIG.6

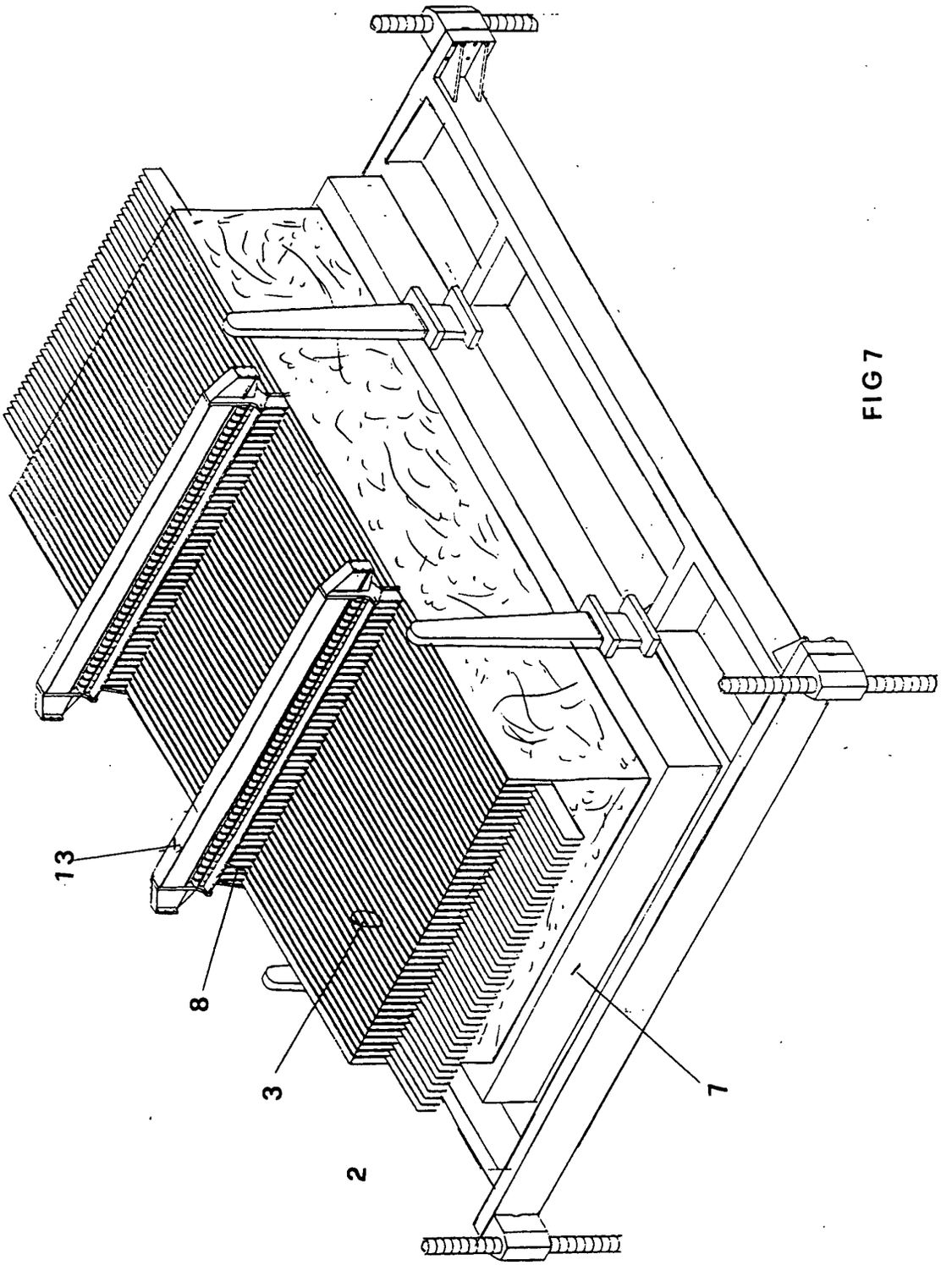

FIG 7

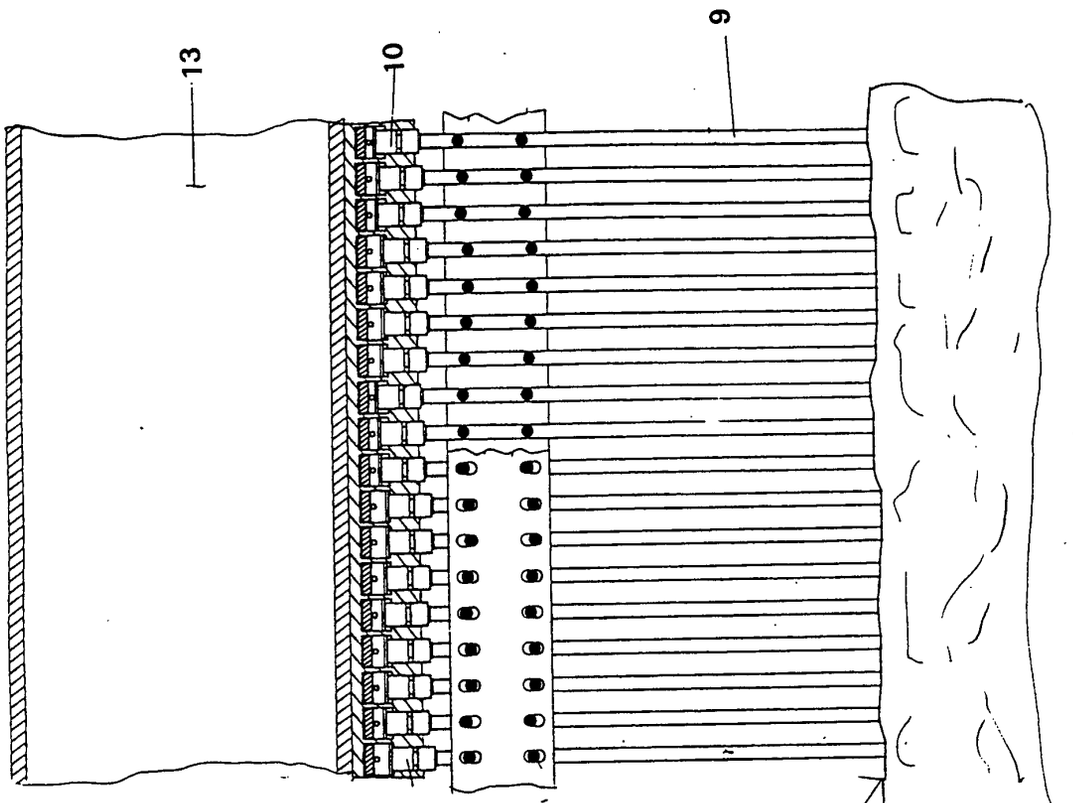

FIG 8

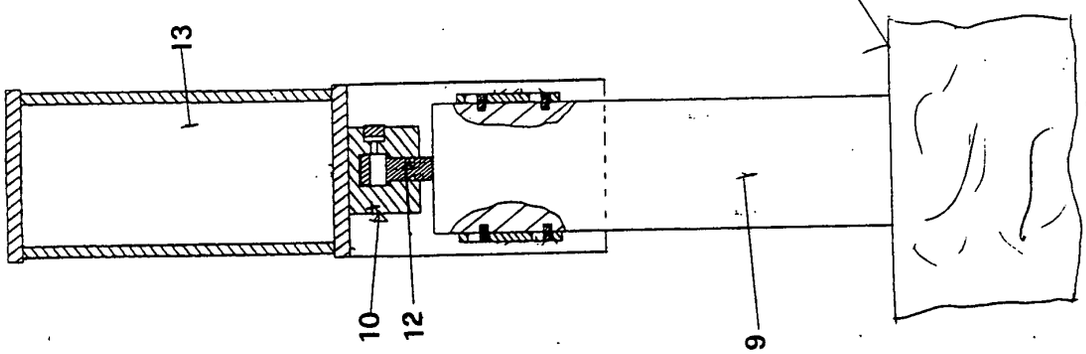

FIG 9