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(54) **Method and device for processing residues of concrete mortar**

(57) The present invention concerns a method and an arrangement for processing surplus concrete slurry, comprising a frame (3) and a number of shuttering forms (4) for concrete slurry, which can be removed from the frame (3), which frame (3) is suitable to be transported by means of a motorized vehicle provided with a trailer,

such as a truck or a tractor, wherein the frame is provided with support elements (5a,5b) for positioning the shuttering forms (4) on the frame and with coupling elements (6) for coupling and uncoupling of the frame to the trailer.

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Description

[0001] The present invention concerns a method and an arrangement for processing surplus concrete slurry.

[0002] Surplus concrete slurry originates from an excess concrete slurry which needs to be prepared to be sure to finish a concrete work on a building site within a certain time period. Because of the manufactured over-production per concrete mixer or concrete work, a considerable amount of concrete per concrete mixing plant is produced daily, the processing possibilities of which usually mean an environmental-economical loss. Processing usually means pouring this concrete slurry into so-called slabs or the upgrading of the concrete slurry in the concrete mixing plant into more suitable building elements. Usually, pouring of this surplus is the most economical solution for a concrete mixing plant, but this is surely detrimental from an environmental point of view. The object of the present invention is to provide an arrangement and a method for upgrading and processing of this surplus concrete slurry, which resolves, at least partly the aforementioned disadvantages.

[0003] To this end, in a first aspect, the invention provides an arrangement comprising a frame and a number of shuttering forms for concrete slurry, which can be removed from the frame, which frame is suitable to be transported by means of a motorized vehicle provided with a trailer, such as a truck or a tractor, wherein the frame is provided with support elements for positioning the shuttering forms on the frame and with coupling elements for coupling and uncoupling the frame to the trailer.

[0004] The use of such a frame, for example having the form of a carriage, provides the logistic advantage that such an arrangement can be temporarily left alone on a concrete construction site. Hence, the invention provides the advantage that on a concrete construction site an excess concrete shuttering forms on the frame is provided. With each surplus concrete slurry per concrete mixer, this surplus is transported in the shuttering forms.

[0005] Gradually, in the course of the activities, these shuttering forms are filled up, each time with a surplus of concrete slurry. For each frame a number of shuttering forms may be provided, enough for the daily amount, to receive the excess concrete slurry per concrete work. The invention further provides the logistic advantage that the excess concrete slurry does not need to be returned to the concrete mixing plant, but may be processed on the spot at the concrete construction site. When the daily activities and the filling up of the shuttering forms has ended, the concrete slurry is left to cure at least partially, preferably for 6 to 12 hours. Subsequently, the device is retrieved generally the next morning, whereby optionally an empty arrangement is provided again for the surplus concrete slurry of a subsequent time period.

[0006] In a second aspect, the invention provides a shuttering form suitable to be transported in series on the common frame. Shuttering forms are generally known. The shuttering form according to the present in-

vention is characterized in that the bottom side of the bottom of the shuttering form is provided with support profiles which are preferably U-shaped and which extend in the transverse direction of the shuttering form.

[0007] Preferably, the shuttering form is provided with a coating, such as a concrete form oil. Preferably, the shuttering form comprises one trapezoid-shaped groove and a corresponding trapezoid-shaped tongue to improve the stackability. Preferably, the tongue/groove is provided in the middle of the side walls of the shuttering form.

[0008] In a third aspect, the invention provides a method for processing a curable material, for example surplus concrete slurry, comprising the steps of:

- providing a number of shuttering forms on a transportable frame,
- transporting the frame provided with the shuttering forms to a surplus concrete slurry site,
- filling the shuttering forms with the surplus concrete slurry at the surplus concrete slurry site,
- optionally post-processing the concrete slurry in the shuttering forms, by vibration or other compaction methods,
- at least partially curing the concrete slurry in the shuttering forms,
- retrieving and transporting the frame provided with the at least partially filled shuttering forms to a further processing site,
- removing the shuttering forms from the frame,
- dismantling the obtained building elements and
- cleaning and subsequently, optionally treating again the empty shuttering forms which are to be placed on the frame again, such that the steps mentioned above may be conducted again.

[0009] Some embodiments of the invention are elucidated by means of the figures wherein :

Figure 1 shows a perspective view of an arrangement according to the invention,

Figure 2 shows a schematic sectional view of a preferred embodiment of the shuttering form according to the invention,

Figure 3 shows a face view of the shuttering form according to the invention and

Figure 4 shows a perspective view of the obtained building element from a preferred embodiment of the shuttering form according to the invention.

[0010] An arrangement **1** according to the invention is composed of a frame **3** provided with a number of shuttering forms **4** for surplus concrete slurry. The shuttering forms are removably provided on the frame **3**. To this end, the frame **3** is provided with support elements **5** onto

which the shuttering forms **4** rest. The frame **3** has the shape of an open carriage and is at the front provided with coupling elements **6** having the form of a hook means **6a**, to be placed in a simple manner on a trailer using a crane jib or a winch. To this end, the frame may also advantageously be provided at the back end with one or more rolling or sliding means **17**. Such means are known from the container industry, for example containers for construction rubble. The frame **3** comprises essentially two longitudinally extending and mutually parallel beams or profiles **7** provided with pairs of parallel cross beams or profiles **5a**, **5b**. These cross beams **5** are suitable for the support of the shuttering forms **4**. For a good support of the shuttering forms **4** on the cross beams **5**, one, and preferably two profiles **9a**, **9b** are provided on the bottom **8** of the shuttering form **4**, which match in shape and size the support elements **5a**, **5b** of the frame **3**. The support profiles **9** are also suitable to be transported using the forks of a lift fork truck. To this end, they may be designed as a U-shaped profile. The shuttering forms **4** are movable in the transversal direction of the frame **3**. Once positioned on the frame **3**, they may be optionally better secured to the frame using securing systems **14**.

[0011] The shuttering forms **4** comprise at least one tongue **10** and one corresponding groove **11**. Hence, the obtained concrete elements **15** are mutually stackable. Preferably, the tongue/groove arrangement is trapezoid-shaped. Every suitable dimension may be provided, for example 60/60/120 cm or 40/40/120 cm or 80/80/120 cm. The shuttering forms **4** are open at the top and provided with five walls **12** coupled to the bottom **8** by means of hinges **13**. The shuttering form may be provided with a clamping means **15** for mutually tightening the side walls **12**.

Claims

1. Arrangement for processing surplus concrete slurry, comprising a frame and a number of shuttering forms for concrete slurry, which can be removed from the frame, which frame is suitable to be transported by means of a motorized vehicle provided with a trailer, such as a truck or a tractor, wherein the frame is provided with support elements for positioning the shuttering forms on the frame and with coupling elements for coupling and uncoupling of the frame to the trailer.
2. Arrangement according to claim 1, **characterized in that** the frame is provided with at least two longitudinally extending and mutually parallel beams or profiles which are mutually fixed with at least two mutually parallel cross beams or profiles, which cross beams form the support elements for the shuttering forms.
3. Arrangement according to claim 2, **characterized in that** the frame is further provided with one or more rolling or sliding means in the vicinity of one end of the longitudinally extending beams.
4. Arrangement according to claim 3, **characterized in that** the other end of the longitudinally extending beams is provided with a hook means.
5. Arrangement according to any one of the preceding claims 1-4, **characterized in that** at the bottom side of the bottom of the shuttering forms, one, and preferably two profiles are provided which match the support elements of the frame in shape and size.
6. Arrangement according to claim 5, **characterized in that** the profiles are U-shaped profiles, such that the shuttering forms are movably positioned on the support elements of the frame.
7. Arrangement according to any one of the preceding claims 1 - 6, **characterized in that** the shuttering forms comprise at least one tongue and one corresponding groove.
8. Arrangement according to any one of the preceding claims 1 - 7, **characterized in that** the shuttering forms are open and provided with five walls, namely four side walls and one bottom, which side walls are coupled to the bottom by means of hinges.
9. Arrangement according to claim 7, **characterized in that** the shuttering form is provided with a clamping means for mutually tightening the side walls.
10. Shuttering form suitable to be used in an arrangement according to any one of the preceding claims 1 - 9.
11. Method for processing a curable material, for example surplus concrete slurry, comprising the steps of :
 - providing a number of shuttering forms on a transportable frame,
 - transporting the frame provided with the shuttering forms to a surplus concrete slurry site,
 - filling the shuttering forms with the surplus concrete slurry at the surplus concrete slurry site,
 - optionally post-processing the concrete slurry in the shuttering forms, by vibration or other compaction methods,
 - at least partially curing the concrete slurry in the shuttering forms,
 - transporting the frame provided with the shuttering forms provided with the concrete slurry to a further processing site,
 - removing the shuttering forms from the frame,
 - dismantling the obtained building elements and
 - cleaning and subsequently, optionally treating

the empty shuttering forms which are to be placed on the frame again, such that the steps mentioned above may be conducted again.

- 12.** Method according to claim 11, **characterized in that** 5
the property of the shuttering forms does not lie in
grant during processing, but is given in consignment
to the owners of the surplus concrete slurry.
- 13.** Method according to claim 11 or 12, **characterized** 10
in that the curing time is at least 6 hours, and pref-
erably at least 12 hours.

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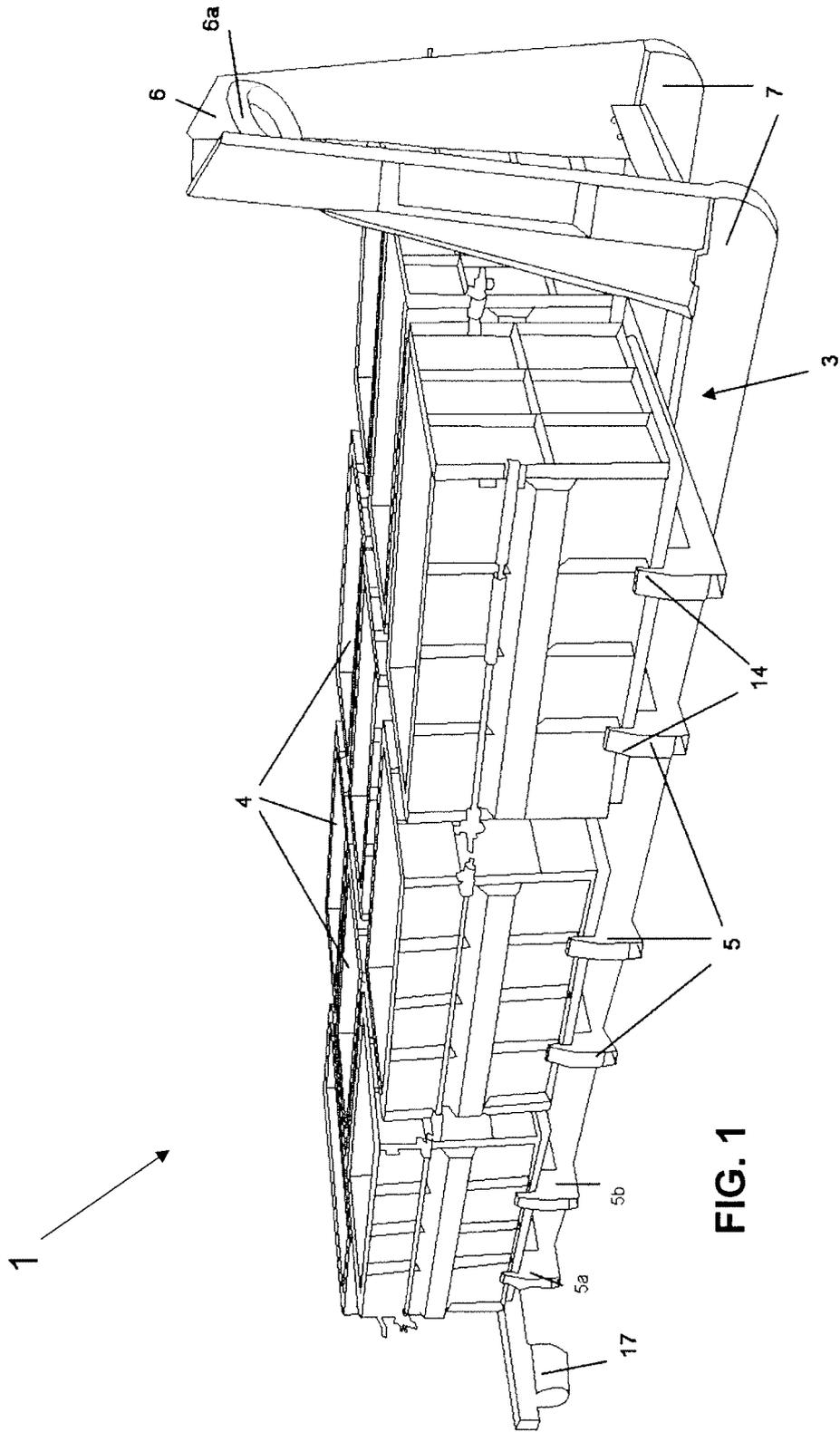


FIG. 1

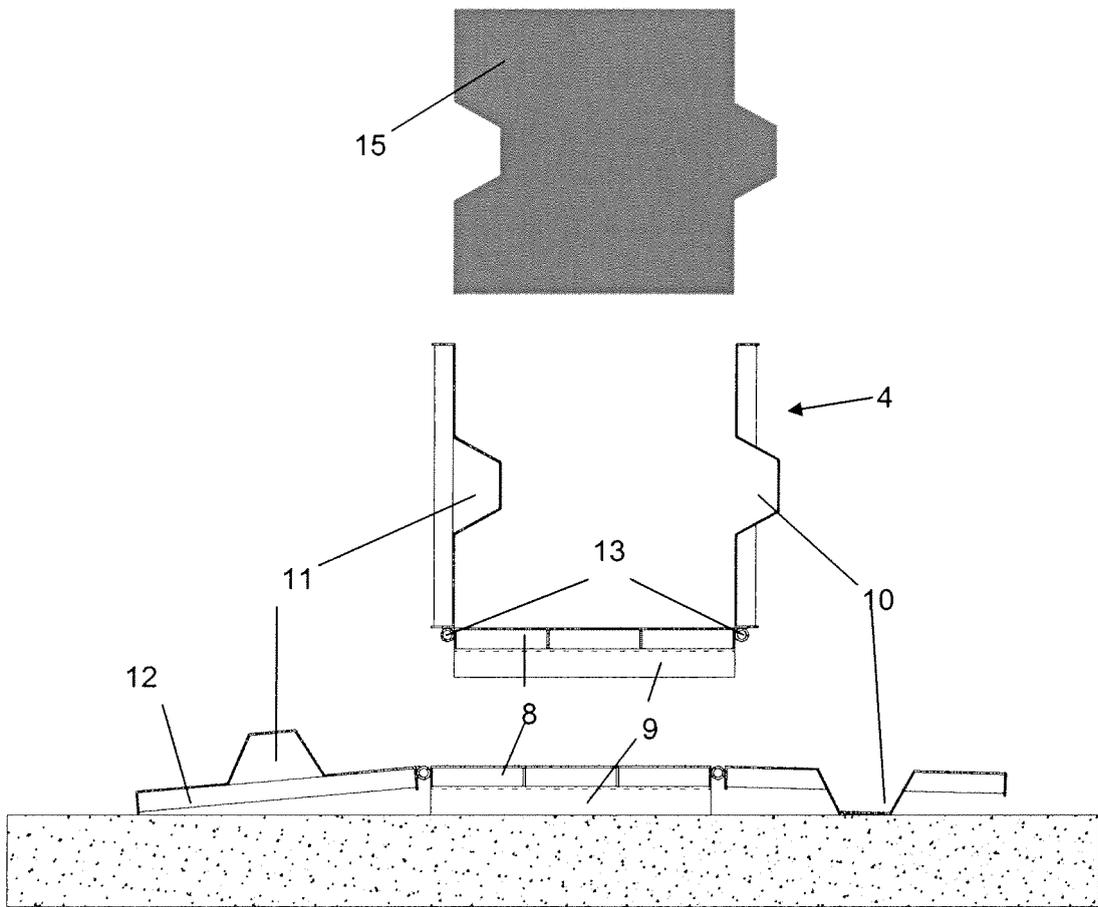


FIG. 2

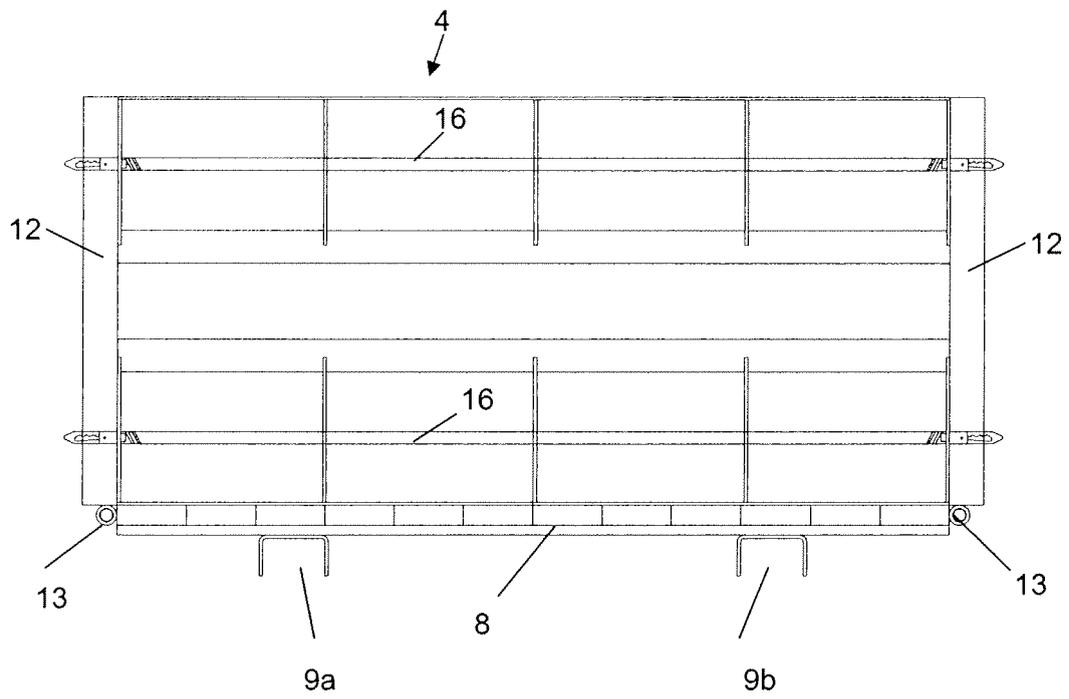


FIG. 3

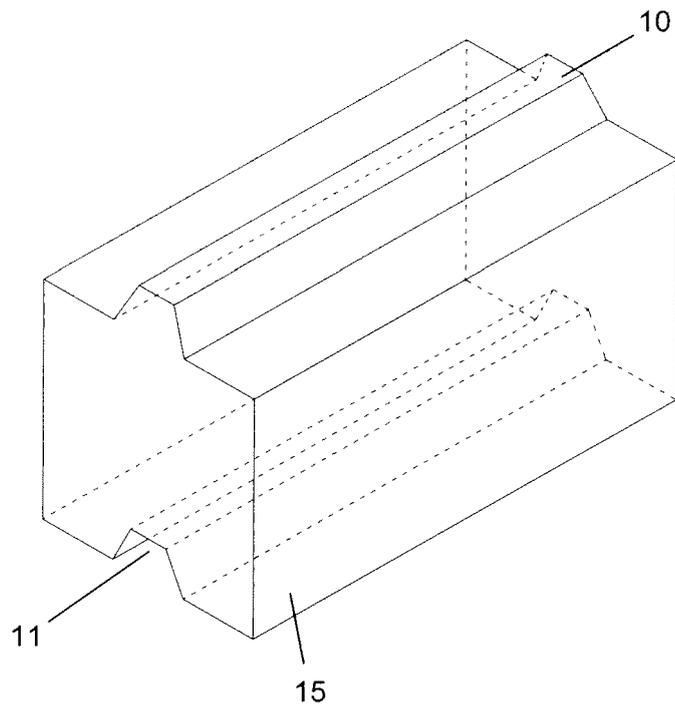


FIG. 4



DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	* page 12, paragraph 2 - page 13, paragraph 1; figure 1 *	10	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 30 June 2008	Examiner Orij, Jack
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 15 2658

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-06-2008

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