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A process for manufacturing, curing, protecting and carrying balusters of any kind.

The invention is characterised in using a previously manufactured disposable cover-mould that is filled with concrete and then left to harden.

To this end a set of prefabricated cover-moulds are placed on a pallet or a base made of wood or other material, next to each other, held by a removable metallic structure perimetrically embracing the lot. Once the covers are filled with concrete, the structure is removed from the pallet or base and the set of manufactured balusters remain standing on the said pallet or base.

Concrete is introduced into the covers by means of a vibratory hopper or platform which has manifold outlets connected to the pipes carrying or injecting the concrete to the bottom of each cover.

The invention relates to a process for manufacturing, curing, protecting and carrying balusters of any kind characterised in using a disposable cover-mould prefabricated to this end in a plastic or any other kind of material which is filled with concrete and allowed to harden inside.

In the state of the art balusters of this kind are manufactured using retrievable moulds comprising two or more parts, which are used repeatedly. The manufacturing process requires the said moulds to be filled with mortar or concrete, and allowed to harden and once this process is over the mould will be opened and the resultant baluster removed which shall next be checked to cover up flaws therein, such as marks made by the mould seam, hollows, pores and the like, for this system does not allow mechanical filling, and vibration processes only with great difficulty.

The baluster moulds are moreover filled one by one and their later treatment must therefore be independent.

The system of the invention considerably improves the current state of the art, yielding a high quality and high performance baluster obtaining the following advantages:

- a). Use of the cover-mould, of the essence in the system of the invention, avoiding premature evaporation of concrete water thereby to control curing thereof and fostering the strength of the baluster.
- b). The cover-mould used provides a separate casing for each baluster, protecting the same from scrapes and/or all kinds of dirt, and moreover provides a significant reinforcement and in most cases prevents traditional severance in handling and carrying the same.
- c). The baluster is carried to its destination, whatever the distance that needs to be travelled, at all times inside the cover and on the platform or pallet upon which it was made.
- d). The use of the cover-mould allows an excellent finish to be obtained because there are no longer any of the traditional mould seams and on the other hand the surface obtained is fine, clean and smooth thereby making the baluster very beautiful, improving not only its appearance but its quality and strength.

Each baluster will be internally fitted with a metallic reinforcement framework or rod, which may optionally project from either or both ends.

The cover-mould can have different shapes and dimensions, which will allow the structure of the baluster manufactured to be varied.

The cover-mould may be easily detached from the baluster manufactured, pulling from it after making just a simple cut.

It is disposable and can be used to manufacture only the one baluster, unlike any other manufacturing

system used heretofore.

The manufacturing process subject of the invention essentially comprises placing on a pallet, wooden or suitable material base, a set of prefabricated cover-moulds, next to each other and held by means of a metallic structure perimetrically embracing the lot.

This structure can be removed and once the covers have been filled with concrete and the setting process has begun, the structure is removed from the pallet or base with only the set of balusters manufactured remaining, which shall be carried to their destination upon the same pallet.

The concrete is put into the cover-moulds via a vibratory hopper or platform that in turn has manifold outlets, as many as there are balusters to fill. These outlets will be connected to as many pipes carrying and injecting the concrete down to the bottom of the cover-mould, to begin the filling process upwards from the bottom, and the hopper or platform will at the same time transmit vibration to each baluster by means of the filling pipes or injectors.

Having described the invention it only remains to be said that all shape or functional conditions as have no critical influence in the essence of the said invention can be varied, and such variations shall be comprised in the protection that is being sought.

Claims

1.- A PROCESS FOR MANUFACTURING, CURING, PROTECTING AND CARRYING BALUSTERS OF ANY KIND, characterised in using disposable cover-moulds, made of plastic or other suitable material, made in the appropriate shape, adapted to the shape of the baluster that is to be obtained and placed on a pallet or base of conventional material and shape, next to each other, and held by a metallic structure which perimetrically embraces the lot.

2.- A PROCESS FOR MANUFACTURING, CURING, PROTECTING AND CARRYING BALUSTERS OF ANY KIND, as in claim 1, characterised in that at a second stage concrete is introduced into the covers, using to this end a vibratory hopper or platform fitted with manifold outlets, one for each of the covers to be jointly used, each such outlet being connected to a pipe through which the concrete is carried and injected until filling of the covermoulds is over.

3.- A PROCESS FOR MANUFACTURING, CURING, PROTECTING AND CARRYING BALUSTERS OF ANY KIND, as in claims 1 and 2, characterised in that during the filling process, which is made upwards from the bottom, the vibratory hopper or platform transmits its vibration to each of the covers by means of the filling pipes or injectors.

4.- A PROCESS FOR MANUFACTURING, CURING, PROTECTING AND CARRYING BALUSTERS OF ANY KIND, as in claims 1 to 3, characterised in

that once the set of covers has been filled and the setting process begun, the metallic framework perimet-
rically embracing the pallet or base is removed and
the balusters obtained remain on such pallet or base,
to be carried to their destination in their respective
covers, on the same pallet or base upon which they
were manufactured.

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EUROPEAN SEARCH REPORT

Application Number

EP 93 50 0103
Page 1

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-2 495 046 (LECLERE-JOUATEL) * the whole document *	1,3	B28B7/34 B28B7/26 B28B13/02
Y	---	2,4	
Y	GB-A-984 677 (AERCRETE MOBILES LIMITED) * the whole document *	2	
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Y	DE-A-2 316 481 (E. CHIESA) * the whole document *	2	
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Y	EP-A-0 415 435 (M. D. WOLF) * the whole document *	4	
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Y	FR-A-631 514 (A. DEBAT) * the whole document *	1-4	
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Y	BETONWERK + BFT FERTIGTEIL-TECHNIK vol. 56, no. 4, April 1990, WIESBADEN, DE page 157, XP123482 "NATURSTEINPFLASTER " AUS BETON" * the whole document *	1,4	
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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 12 OCTOBER 1993	Examiner GOURIER P.A.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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EP 93 50 0103
Page 2

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	FR-A-2 539 668 (J.-Y. BEAUGEARD) * the whole document *	1-4	
A	AU-B-478 435 (ZEUGMA HOLDINGS PTY. LTD) * the whole document *	1	
A	US-A-2 352 083 (R. L. DETJEN) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 OCTOBER 1993	Examiner GOURIER P.A.
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