



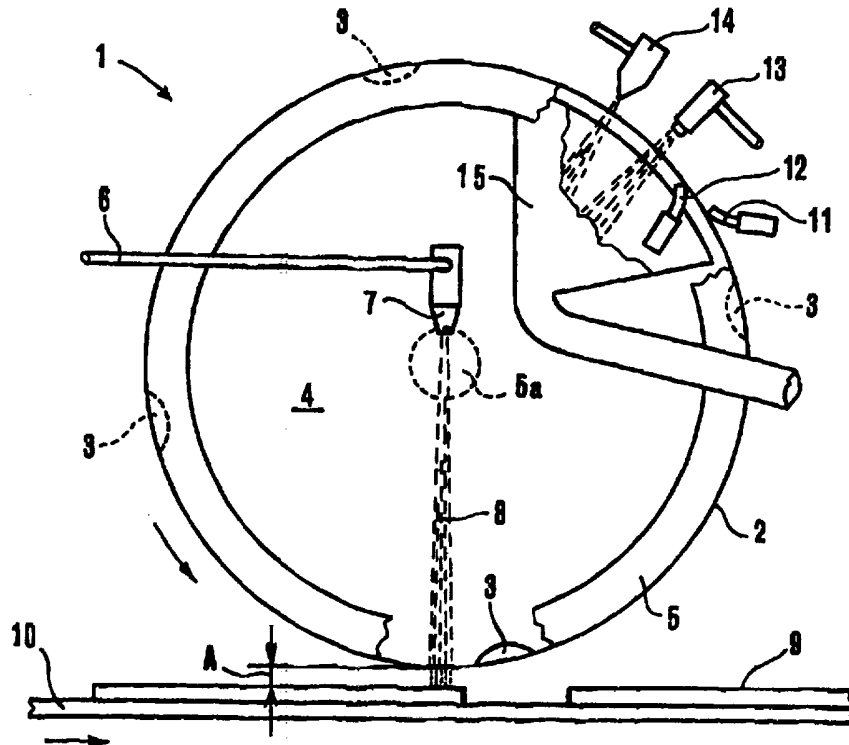
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : B41M 1/12, B28B 11/00 C04B 41/45, B44C 1/04</p>	<p>A3</p>	<p>(11) International Publication Number: WO 95/18020 (43) International Publication Date: 6 July 1995 (06.07.95)</p>
<p>(21) International Application Number: PCT/EP94/04291 (22) International Filing Date: 23 December 1994 (23.12.94) (30) Priority Data: MO93A000165 24 December 1993 (24.12.93) IT MO93A000166 24 December 1993 (24.12.93) IT MO94A000164 13 December 1994 (13.12.94) IT (71)(72) Applicants and Inventors: CAMORANI, Carlo, Antonio [IT/IT]; Via Radici in Monte, 175, I-42010 Roteglia di Castellarano (IT). ALGERI, Maris [IT/IT]; Via Radici in Monte, 175, I-42010 Roteglia di Castellarano (IT). (74) Agent: GARDI, Giuliano; Gardipatent, Via Giardini, 605, I-41100 Modena (IT).</p>	<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 17 August 1995 (17.08.95)</p>	

(54) Title: SILK-SCREEN PROCESS FOR DECORATING ITEMS AND ASSOCIATED APPARATUS

(57) Abstract

Items are decorated using a silk-screen process with liquid glaze whereby the items (9) are positioned at a distance (A) from a matrix (2), through which the decorating fluid is forced, so that contact between said items and said matrix is avoided. The decorating fluid is selectively associated with the said matrix and subjected to transferring means (7) for transferring the fluid to the items. Said transferring means being capable of subjecting the decorating fluid to dynamic forces greater than the force due to gravity. The decorating fluid is projected onto the said items by virtue of the said dynamic forces.



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INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/EP 94/04291

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B41M1/12 B28B11/00 C04B41/45 B44C1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B44C B41M B28B C04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,A,25 58 846 (VILLEROY & BOSCH KERAMISCHE WERKE KG) 7 July 1977 see page 4, paragraph 1 - page 9, paragraph 2 ---	1-3, 8, 9, 19, 21, 30, 33, 34, 36
X	DE,C,41 08 651 (ABB PATENT GMBH) 8 October 1992 see column 1, line 50 - column 3, line 17 ---	1, 2, 5, 6, 21, 23
X	GB,A,841 838 (FAIENCERIE CERANORD SOCIETE DES NOUVELLES USINES CERAMIQUES DU NORD) 20 July 1960 see page 1, line 10 - page 5, line 24 -----	1-3, 8, 9, 21, 36, 37

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents:

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- *E* earlier document but published on or after the international filing date
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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

21 April 1995

Date of mailing of the international search report

26. 07. 95

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP 94/04291

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please see attached sheets ./.

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-38 (completely)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/

LACK OF UNITY OF INVENTION

1. Claims: 1-38
Method and associated apparatus for decorating an item with a decorating fluid

2. Claims: 39-53
Method for synchronising the movement of flat ceramic elements on a conveyor line

1. Single problem underlying SA102887

Considering the description and the claims as a whole, the single problem underlying SA102887 can be understood as providing a method and an apparatus for decorating articles with a decorating fluid whereby the movement of the articles and the decorating means is synchronised.

2. Closest prior art

The document DE-A-2558846 discloses a process and an apparatus for the decoration of items with decorating fluid whereby the movement of the articles and the decorating means is synchronised. Therefore, in order to satisfy the conditions of unity of invention, at least one special technical feature must be commonly present in all of the claims of SA102887.

3. Problem underlying the first solution in the description of the application as filed.

Providing a method of decorating items with liquid or powdered glaze substantially using a silk screen process whereby contact is avoided between the screen and the surface of the item(s) to be decorated. Providing a machine for performing the decoration also forms part of the problem underlying the first solution.

4. Problem underlying the second solution in the description of the application as filed.

Providing a method and an apparatus for synchronising the movement of a number of flat ceramic elements on a conveyor line associated with the machine for decorating items of 1. above.

5. Solution to first problem in its broadest form

Claims 1-20 pertain to a method for decorating an item with a decorating fluid in such a way that contact between a matrix (or screen), through which the said fluid is forced, and the said item is avoided.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/

Claims 21-36 pertain to a machine for implementing the method of Claims 1-20.

Claims 37-38 pertain to a product obtainable through the implementation of the method of Claims 1-20.

6. Solution to second problem in its broadest form

Claims 39-53 pertain to a method for synchronising the movement of flat ceramic elements on a conveyor line.

7. Plurality of different inventions

Therefore, Claims 1-38 constitute one invention defined as "a method for decorating an item with a decorating fluid in such a way that contact between a matrix (or screen), through which the said fluid is forced, and the said item is avoided." A machine for performing the method is also part of this invention.

Claims 39-53 constitute another, different invention defined as "a method for synchronising the movement of flat ceramic elements on a conveyor line."

8. Common technical features

The only technical feature that is common to both sets of claims (i.e. Claims 1-38 and Claims 39-53) is the machine for performing the method of decoration defined in Claim 21.

The document DE-A-2558846 discloses a process and a machine for the decoration of items with decorating fluid whereby contact between a stencil or screen and the items is avoided. DE-A-2558846 anticipates the content of Claims 1 and 21 of SAE102887.

The common technical feature linking Claims 1-38 with Claims 39-53 is therefore not special.

There are no further common technical features that could possibly be regarded as "special technical features" conferring unity to the plurality of different inventions defined in Paragraph 7. Thus there is no single inventive concept underlying the different inventions and the present application lacks unity.

9. The different inventions not belonging to a common inventive concept are presented as the different subjects on the communication pursuant to Article 17 (3) (a) PCT.

10. Furthermore, it should be noted that searching this plurality of different subjects would have caused major additional searching effort.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/

11. Implicit dependency of Claims 39-53

In so far as Claims 39-53 can be seen as being dependent upon Claim 1 and/or Claim 21, the content of Claims 39-53 has been searched. However, in so far as Claims 39-53 extend beyond the subject matter of Claim 1 and/or Claim 21, the content of Claims 39-53 has not been searched.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 94/04291

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-2558846	07-07-77	FR-A, B 2336187 GB-A- 1562715 NL-A- 7611408	22-07-77 12-03-80 29-06-77
DE-C-4108651	08-10-92	NONE	
GB-A-841838		NONE	