

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US2015/030078	International filing date (day/month/year) 11.05.2015	Priority date (day/month/year) 19.05.2014
International Patent Classification (IPC) or both national classification and IPC INV. B28C5/08 B01F5/00 B28C5/38		
Applicant UNITED STATES GYPSUM COMPANY		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Fax: +31 70 340 - 3016	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Orij, Jack Telephone No. +31 70 340-0
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☐ forming part of the international application as filed:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
 - ☐ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>5</u>
	No: Claims	<u>1-4, 6, 7</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-7</u>
Industrial applicability (IA)	Yes: Claims	<u>1-7</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following documents:
 - D1 US 2005/248049 A1 (GANNAWAY KERRY G [US] ET AL) 10 November 2005 (2005-11-10)
 - D2 US 2004/062141 A1 (SHRADER GAYLON BRUCE [US] ET AL) 1 April 2004 (2004-04-01)
 - D3 DE 10 2008 003738 A1 (NEOPOR SYSTEM GMBH [DE]) 30 July 2009 (2009-07-30)
- 2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent **claim 1** is not new in the sense of Article 33(2) PCT.
 - 2.1 The document D1 discloses (the references in parentheses applying to this document) a discharge gate (110, 140) *for a gypsum slurry mixer [see Item VIII, §1]*, comprising:
a lower member (118, figure 5; figure 6) [see Item VIII, §2] having an inlet opening (112; 151) configured for receiving the slurry, and an outlet opening (120; figure 6) configured for delivering the slurry to a dispensing device; an upper member (114, figure 5; 154 figure 6) [see Item VIII, §2] attached to the lower member, at least one of the upper and lower members having at least one opening (122; 146, 148) for accommodating insertion of an injection port for introducing the foam to the slurry [see Item VIII, 1]; and a cavity (figures 5, 6) configured for mixing the foam and slurry, and defined by inner surfaces of the lower member and the upper member (§0020 - §0023, figure 1; §0034 - §0041, figures 5-8).

Also document D2 discloses all the features of claim 1, see the corresponding passages cited in the International Search Report.

The subject-matter of **claim 1** is therefore deprived from novelty (Article 33(2) PCT).
- 3 Dependent **claims 2-7** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:

- 3.1 The inside surface 118 of D1 which is tapered continuously towards the exit opening can be considered as a gate filler block being unitary with the lower member. In D2 either the diverter 68 having a helical shape or the flow restrictor 70 (figure 4) can be considered as a gate filler block, both disclose an inclined ramp with a continuous contour.
- 3.2 Both figure 5 and 6 of D1 show a configuration in which the injection port is oriented perpendicular to the inlet flow of the the slurry in the discharge gate.
- 3.3 It is preferred that the end of the injection port is flared for increasing pressure of the emitted foam. Thus, the foam is more evenly mixed with the slurry passing through the discharge gate. To achieve such an effect is considered obvious for the person skilled in the art, see for example D3, figure 1 and §0011 - §0015.
- 4 The subject-matter of claims **1-7** is considered as susceptible of industrial application (Article 33(4) PCT).

Re Item VII

Certain defects in the international application

- 1 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1-D3 is not mentioned in the description, nor are these documents identified therein.
- 2 The features of claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- 3 Claim 7 comprises all the features of claim 1 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).
- 4 On page 1 of the description it is stated that the present disclosure relates to a method and apparatus for preparing gypsum products, however only the apparatus is claimed.
- 5 When referring to prior art publications in the description, the wording "incorporated by reference herein" should be deleted. If it is essential that details of the prior art documents be incorporated in the present application, this may only be done under the conditions described in the PCT-Guidelines 4.26.

Re Item VIII

Certain observations on the international application

- 1 The expressions "discharge gate for a gypsum mixer ..." and "one opening for accommodating insertion of an injection port ..." as used in **claim 1** indicate the device's suitability for carrying out the specified use. It is however to be remarked that this suitability as such does not have a limiting effect on the area for which protection is sought, cf. the PCT-Guidelines 5.23.
- 2 The relative terms "upper member" and "lower member" used in **claim 1** have in the context of the wording of the claim no well-recognized meaning and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claim unclear (Article 6 PCT).
- 3 As the one opening is suitable for accommodating insertion of an injection port (see §1 above), **claims 1, 5 and 6** not only define the entity itself (discharge gate) but also specify its relationship to a second entity (an injection port) which is not part of the claimed entity, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT, PCT-Guidelines, 5.37).