

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43*bis*.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/US2015/025274

International filing date (day/month/year)
10.04.2015

Priority date (day/month/year)
18.04.2014

International Patent Classification (IPC) or both national classification and IPC
INV. B28C7/00 B01F5/04 B01F3/06 B01F3/12 B28C9/00 B28C5/06

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 43*bis*.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 66.1*bis*(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:



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Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

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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. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- ☒ paid additional fees
 - ☐ paid additional fees under protest and, where applicable, the protest fee
 - ☐ paid additional fees under protest but the applicable protest fee was not paid
 - ☐ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos.

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>6-9</u> |
| | No: Claims | <u>1-5, 10</u> |
| Inventive step (IS) | Yes: Claims | |
| | No: Claims | <u>1-10</u> |
| Industrial applicability (IA) | Yes: Claims | <u>1-10</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

Re Item IV

1 Cited documents

Reference is made to the following documents:

- D1 GB 765 217 A (WHITLEY MORAN & COMPANY LTD) 9 January 1957 (1957-01-09)
- D2 DE 15 09 455 A1 (HOELTER HEINZ) 9 January 1969 (1969-01-09)
- D3 WO 2008/135503 A1 (LHOIST RECH & DEV SA [BE]; DEV CHANVRE SOC A ACTION SIMPL [FR]; GOUDET) 13 November 2008 (2008-11-13)
- D4 US 4 039 170 A (CORNWELL CHARLES E ET AL) 2 August 1977 (1977-08-02)
- D5 US 2007/241204 A1 (OHATA HIROKI [JP] ET AL) 18 October 2007 (2007-10-18)
- D6 US 6 494 609 B1 (WITTBOLD JAMES R [US] ET AL) 17 December 2002 (2002-12-17)cited in the application
- D7 US 1 486 883 A (PALMER HALLIBURTON ERLE) 18 March 1924 (1924-03-18)
- D8 WO 2013/156792 A2 (PURSUIT DYNAMICS PLC [GB]) 24 October 2013 (2013-10-24)
- D9 DE 20 2006 001759 U1 (IDS GMBH INSTANDHALTUNG DIENST [DE]) 7 September 2006 (2006-09-07)

2 Lack of Unity (Art. 13 PCT)

- 2.1 This Authority considers that the application does not meet the requirements of unity of invention and that there are three inventions covered by the claims indicated as follows:

Group I: Claims 1-3,10

A mixing system with a source of liquid in communication with the flow conduit and a building panel obtained using a slurry produced by said mixing system.

Group II: Claims 4-9

A mixing system for preparing a gypsum slurry.

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

- 2.2 D4 (figures 2-4; column 3, lines 7-16) discloses all features of claim 1, namely:
A mixing assembly, comprising:
a source (10) of pressurized air;
a container (13) of dry particulate in fluid communication with said source (10) of pressurized air such that said dry particulate is drawn into a flow conduit (12) of said pressurized air as said air passes said container (13);
an outlet at one end of said flow conduit (43); and
a source (15) of liquid in communication with said flow conduit (12) at a junction located between said outlet (43) and said container (13).
- 2.3 The features of claim 1 can therefore not be regarded as being special technical features further differentiating the invention of the present application from the prior art. D4 discloses also all features of claim 3 and of the mixing system used for producing the slurry of the building panel of claim 10.
- 2.4 The remaining features of the two inventions solve two different problems by means of different potentially special technical features.
- 2.5 The objective problem to be solved by the **first** invention is to provide a mixing system with liquid injection in the flow conduit which promotes the flow of the liquid towards the outlet and therefore avoids clogging of the conduit (see description page 5, 1st paragraph). The features which solve this problem are the features of claim 2. Claims 3 and 10 belong also to the same group of invention.
- 2.6 The objective problem to be solved by the **second** invention is to provide a mixing system for preparing a gypsum slurry. The features which solve this problem are the features of claim 4 and the following features of claim 5: "a container of stucco". Claims 6-9 are all depending on said claim 5 and belong therefore to the same group of invention.

- 2.7 Since the problems to be solved by the two inventions and the features which solve these problems are different, the different technical features cannot be considered to be corresponding special technical features as required by PCT Rule 13.2.
- 2.8 In conclusion, the groups of claims are not linked by common or corresponding special technical features and define two different inventions not linked by a single general inventive concept.
- 2.9 The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V

1 Independent claim 1

- 1.1 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claim 1 is not novel.
- 1.2 D1 (figures 1-4; page 2, lines 69-89; page 2, line 123 - page 3, line 25) discloses:
- A mixing assembly, comprising:
a source (5) of pressurized air;
a container (2) of dry particulate in fluid communication with said source (5) of pressurized air such that said dry particulate is drawn into a flow conduit (4) of said pressurized air as said air passes said container (2);
an outlet at one end of said flow conduit (4); and
a source (7) of liquid in communication with said flow conduit (4) at a junction located between said outlet and said container.
- 1.3 D2-D5 disclose also all features of claim 1, see relevant passages in the search report.

2 Independent claim 5

- 2.1 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claim 5 is not novel.
- 2.2 D1 (figures 1-4; page 2, lines 69-89; page 2, line 123 - page 3, line 25) discloses:

A stucco slurry mixing system, comprising:
a main flow conduit (4) having an inlet end and an opposite outlet;
a source (5) of pressurized motive fluid at said inlet end;
a container (2) of stucco in fluid communication with said flow conduit (4)
using an eductor;
said pressurized motive fluid drawing stucco from said container (2) into said
flow conduit (4), to form a slurry.

- 2.3 D2 discloses also all features of claim 5, see relevant passages in the search report.
- 2.4 The replacement of cement by gypsum in documents D3 and D4 is considered as an obvious modification without hindering functioning of the mixing assembly. The subject matter of claim 5 is therefore also lacking inventive step in the sense of Art. 33(3) PCT.
- 2.5 Documents D5, D8 and D9 could also be considered as closest prior art to the subject matter of claim 5, wherein the use of their mixing assembly for preparing a stucco slurry in the meaning of claim 5 is considered obvious. Indeed documents D8 and D9 are disclosing that any kind of particulate material can be used for mixing with water to ensure hydration (see D8 (page 1, 2nd paragraph) and D9 (paragraph [0004])). In addition nothing in D5, D8 or D9 would prevent the skilled reader from applying their teaching to the preparation of a stucco slurry. The subject matter of claim 5 is therefore also lacking inventive step in the sense of Art. 33(3) PCT.

3 **Independent claim 10**

- 3.1 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claim 10 is not novel.
- 3.2 D6 (figure 10; column 9, lines 25-33) discloses:
*A building panel (not shown) made using a slurry created using a mixing assembly (10), comprising:
a source of pressurized motive fluid; and
a container of dry particulate in fluid communication with said source of pressurized motive fluid through an eductor such that said dry particulate is drawn into a flow conduit of said pressurized motive fluid as said fluid passes said container in said eductor (see interpretation in §3.3 below).*

- 3.3 The building panel of claim 10 is defined by its way of manufacturing it. Claim 10 is therefore considered as a product-by-process claim in the sense of the Guidelines A5.26[1]. Such a claim is allowable only if the product as such fulfils the requirements for patentability, i.e. *inter alia* that it is new and inventive. A product is not rendered novel merely by the fact that it is produced by means of a new process. However it is considered that the product as such, namely the building panel, is identical to the building panels known in the art, such as the panel of D6. The description of the present application does not provide any evidence that the panel obtained by such a mixing system does exhibit different properties compared to the known panels. A reduced water demand during the mixing process as disclosed on page 2, lines 25-29, cannot be translated into product properties at the level of the panel. Hence, the building panel of claim 10 cannot be differentiated from the panels known in the art.

4 **Dependent claims**

- 4.1 Dependent claims 2-4 and 6-9 do not contain any 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.
- 4.1.1 D1 (figures 1-4; page 2, lines 69-89; page 2, line 123 - page 3, line 25) discloses the subject-matter of claims 3 and 4 (see interpretation in §2.3 above).
- 4.1.2 D3 (figures 1,4; page 17, lines 17-24; page 18, lines 3-24; page 21, lines 27-30) discloses the subject-matter of claim 2.
- 4.1.3 D8 (figures 1-3; page 17, lines 12-27; page 18, lines 7-31) discloses all features of claims 6 and 7.
- 4.1.4 The differentiating features of claims 8 and 9 are considered as resulting from a slight constructional change of the mixing assembly known from the documents D7-D9 which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. Consequently, the subject-matter of said claims also appears to lack an inventive step in the sense of Art. 33(3) PCT.

5 **Industrial applicability**

- 5.1 The subject matter of claims 1-10 is considered as being industrially applicable (Article 33(4) PCT).

Re Item VII

- 1 Claims 1-10 should be provided with reference signs placed in parentheses in order to increase the intelligibility of said claims.
- 2 Claims 2-4 are referring to the "system" of claim 1, however claim 1 is defined as a "mixing assembly".
- 3 Claim 9 refers to "said eductor" not mentioned before in the claims on which claim 9 is depending.
- 4 The units of measure employed on pages 4-6 of the description are not additionally expressed in terms of the units stipulated by Rule 10.1/(a)/and/(b) PCT.