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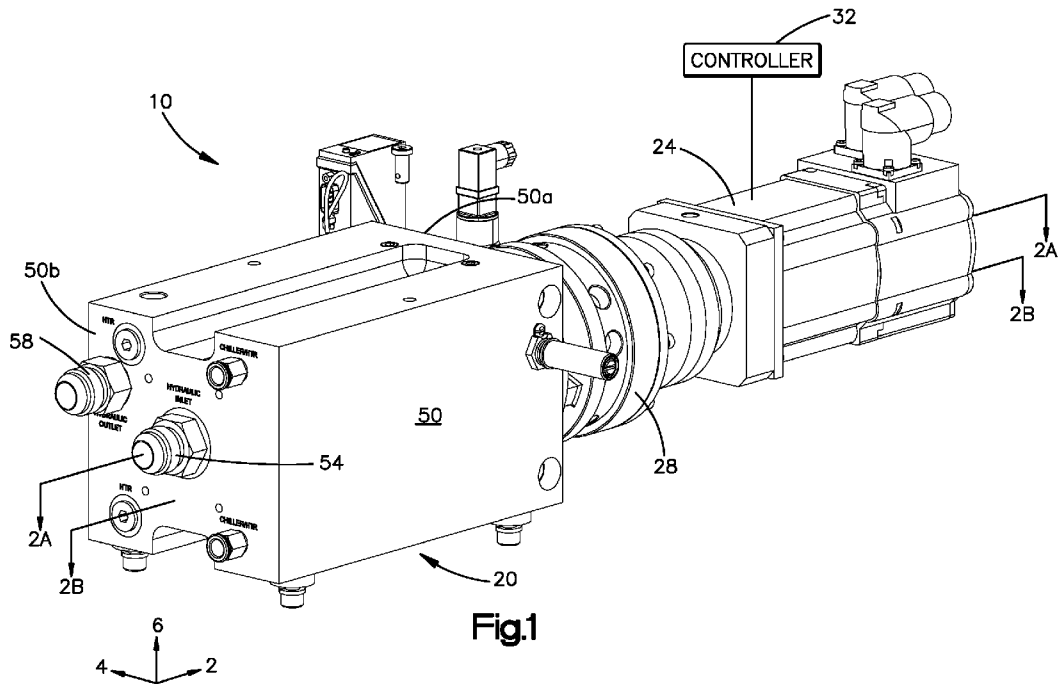
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(81) Designated States (*unless otherwise indicated, for every*

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(54) Title: FOAM MIXING SYSTEM



(57) Abstract: A mixing system (10) mixes liquid adhesive and gas to create a solution. The mixing system includes a manifold (50) defining an adhesive input (54) that receives the liquid adhesive, a gas input that receives the gas, a mixing chamber in fluid communication with the adhesive and gas inputs, an output (58) that outputs the solution, and an output passage extending from the mixing chamber to the output. The mixing system also includes a rotor that rotates within the mixing chamber about a longitudinal axis so as to mix the solution, a motor that rotates the rotor, and a static mixer positioned within the output passage that statically mixes the solution flowing through the output passage.



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2020/033083

A. CLASSIFICATION OF SUBJECT MATTER
INV. B01F3/04 B01F5/06 B01F7/00 B01F13/10
ADD.
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)
B01F C09J B29B
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 practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2018/197493 A1 (NESTEC SA [CH]) 1 November 2018 (2018-11-01)	1-6,8-13
A	abstract figure 1 page 1, line 5 - line 13 page 8, line 14 - page 11, line 7	7,14
X	US 4 281 937 A (FERRI JOSEPH E ET AL) 4 August 1981 (1981-08-04) abstract figures 1-3 column 2, line 40 - column 4, line 64 ----- -/--	1-14

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "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 27 November 2020	Date of mailing of the international search report 07/12/2020
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Krasenbrink, B

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2020/033083

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94/13395 A1 (NIRO HOLDING AS [DK]; RASMUSSEN CARSTEN OLE [DK]) 23 June 1994 (1994-06-23) abstract figures 1,2 page 3, line 27 - page 4, line 2 page 6, line 12 - page 8, line 20 -----	1-14
X	US 3 231 242 A (SCHRIER HAROLD D) 25 January 1966 (1966-01-25) figures 1-7 column 1, line 8 - line 28 column 2, line 60 - column 7, line 71 -----	1-14
A	US 2005/094482 A1 (FOSTER JOHN R JR [US] ET AL) 5 May 2005 (2005-05-05) abstract figures 1-3, 5, 5A paragraphs [0002] - [0004], [0021] - [0035] -----	1-14
A	EP 1 435 267 A1 (RAUTE OYJ [FI]) 7 July 2004 (2004-07-07) abstract figures 1,2 paragraphs [0022], [0028] - [0035] -----	1-14
X	DE 10 2017 113890 A1 (IKA WERKE GMBH & CO KG [DE]) 27 December 2018 (2018-12-27) abstract figure 1 paragraphs [0030] - [0050] -----	15-26 27
X	DE 297 09 060 U1 (INST LEBENSMITTELWISSENSCHAFT [CH]) 31 July 1997 (1997-07-31) figures 1-12 pages 8-15 -----	15-26 27
X	DE 31 30 968 A1 (ERNST EBERHARD) 24 February 1983 (1983-02-24) abstract figures 1-3 page 10, line 12 - page 18, line 14 -----	15-27
A	GB 894 627 A (PETER WILLEMS) 26 April 1962 (1962-04-26) figures 11-19 page 6, line 126 - page 9, line 62 -----	15-27

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2020/033083

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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 fees, this Authority did not invite payment of additional fees.

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.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14

mixing system and method comprising a motor configured to rotate the rotor at less than 100 rpm

2. claims: 15-27

mixing system comprising a stator defining a plurality of teeth and a rotor with an outer surface comprising a plurality of teeth and with a plate defining a plurality of teeth

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2020/033083

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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