



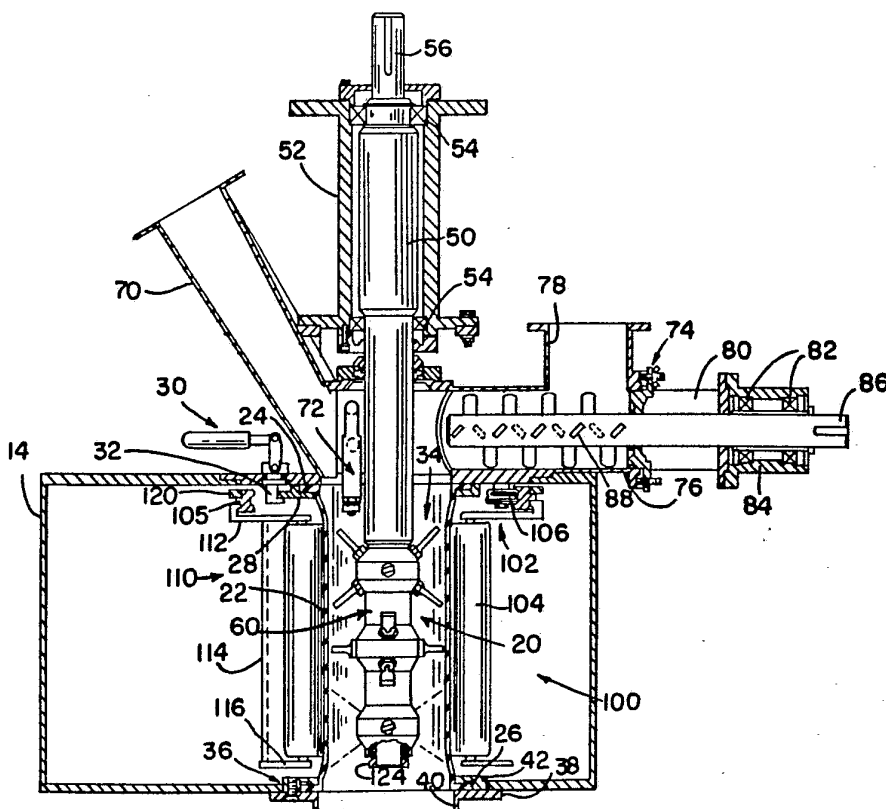
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification⁴ : B01F 7/00, 15/00</p>	<p>A3</p>	<p>(11) International Publication Number: WO 88/ 08744 (43) International Publication Date: 17 November 1988 (17.11.88)</p>
<p>(21) International Application Number: PCT/US88/01225 (22) International Filing Date: 18 April 1988 (18.04.88) (31) Priority Application Number: 057,300 (32) Priority Date: 6 May 1987 (06.05.87) (33) Priority Country: US</p> <p>(71) Applicant: BERWIND CORPORATION [US/US]; 3000 Centre Square West, 1500 Market Street, Philadelphia, PA 19100 (US).</p> <p>(72) Inventors: LANGSETMO, Peder, K. ; 2645 France No., Minneapolis, MN 55422 (US). INOUE, Masayuki ; 2806 53rd. Ave. No., Minneapolis, MN 55430 (US). DOUGLAS, Robert, A. ; 7901 35th. Ave. N., Minneapolis, MN 55427 (US). KOENIG, Peter, M. ; 1619 Irving Ave. N., Minneapolis, MN 55411 (US). HALASZ, Alex ; 1876 Pleasant Hill Rd., Sebastopol, CA 95472 (US).</p>	<p>(74) Agent: PETERSON, Thomas, F.; Ladas & Parry, 104 S. Michigan Avenue, Chicago, IL 60603 (US).</p> <p>(81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), JP, KR, LU (European patent), NL (European patent), SE (European patent).</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: 15 December 1988 (15.12.88)</p>	

(54) Title: MIXER

(57) Abstract

A mixer includes an elongated flexible sleeve (22) that is supported in a housing in a vertical orientation and has a mixing shaft (50) extending therein with a plurality of blade holders supported on the shaft and each blade holder supports a plurality of blades. A deforming means (100) extends around the flexible sleeve and is rotatable about a vertical axis by suitable reciprocating or rotating drive members to prevent accumulation of materials on the inner surface of the sleeve. The blade holders (132) are preferably formed as an integral part of a mixing apparatus and each mixing blade (144) is preferably individually supported on a holder to be infinitely adjustable and effect the mixing capabilities of the assembly. The flexible sleeve can be tensioned between upper and lower ends.



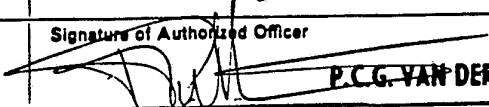
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INTERNATIONAL SEARCH REPORT

International Application No PCT/US 88/01225

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC ⁴ : B 01 F 7/00; B 01 F 15/00		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC ⁴	B 01 F; B 08 B	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included In the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	US, A, 3887166 (VAN GINNEKEN) 3 June 1975, see column 6, lines 34-59; figures (cited in the application) --	1, 31, 35, 37
A	US, A, 4548359 (KRIEBEL) 22 October 1985 --	
A	US, A, 4158629 (SAWYER) 19 June 1979 --	
A	US, A, 2630301 (LENTZ) 3 March 1953 --	
A	US, A, 2797903 (URBAN) 2 July 1957 --	
A	Patent Abstracts of Japan, vol. 4, no. 182 (C-35)(664) 16 December 1980 & JP, A, 55121828 (YASUROU ITOU) 19 September 1980 --	
A	Patent Abstracts of Japan, vol. 9, no. 317 (C-319)(2040) 12 December 1985 & JP, A, 60153928 (MATSUSHITA DENKO K.K.) 13 August 1985 -----	
<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"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</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"Δ" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
1st August 1988	31. 10. 88	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	 P.C.G. VAN DER PUTTEN	

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹

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

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

2. Claim numbers..... 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. Claim numbers..... because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING ²

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

for further information please see PCT/ISA/206 mailed on
12.08.1988

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. 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 claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the international searching authority did not invite payment of any additional fee.

Remark on Protest

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

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

US 8801225
SA 21962

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on 24/10/88
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A- 3887166	03-06-75	NL-A- 7316182 JP-A- 50084962	29-05-75 09-07-75
US-A- 4548359	22-10-85	None	
US-A- 4158629	19-06-79	US-A- 3948489	06-04-76
US-A- 2630301		None	
US-A- 2797903		None	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82