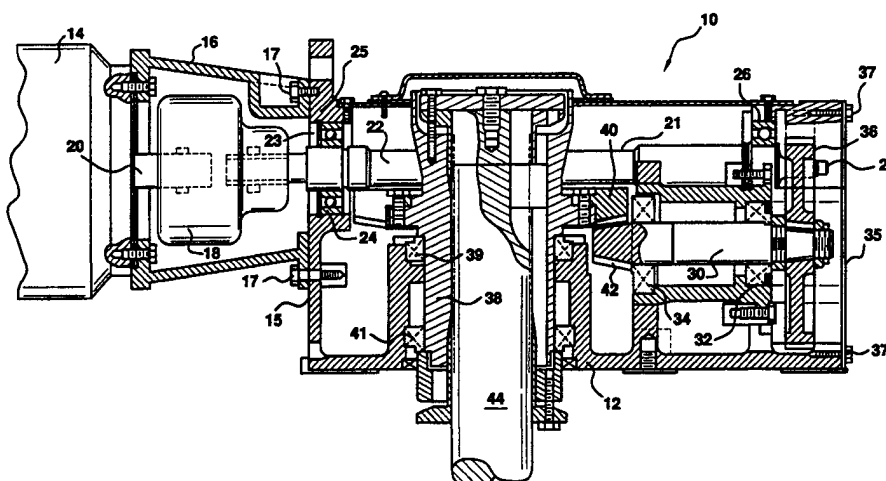




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: TRANSMISSION ASSEMBLY



(57) Abstract

The transmission assembly incorporates a mixer gearbox assembly, a system for centering and retaining a mixer shaft and drive and a seal. The mixer gearbox assembly is operable to drive a mixer shaft and is capable of receiving either a complete electric drive motor on a first face (15) of the gearbox housing (12) for operatively coupling with a first end of a long cross-shaft (22) in the housing, or alternatively a partial electric motor on a second face of the gearbox housing for operatively coupling with an opposite end (27) of the cross-shaft.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/20101

A. CLASSIFICATION OF SUBJECT MATTER IPC(6) : F16H 57/02; B25G 3/20; E21B 33/00 US CL : 074/606R; 403/370; 277/001 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) U.S. : 074/606R; 403/370; 277/001 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched none Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) aps		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X - Y	US 3,796,108 A (KIME et al) 12 March 1974 (12/03/74), see entire document	25 ---- 18, 19, 23
X	US 5,195,623 A (SOMMER) 23 MARCH 1993 (23/03/93), SEE ENTIRE DOCUMENT	25
X	US 2,354,987 A (FAWKES) 01 AUGUST 1944 (01/08/44), SEE ENTIRE DOCUMENT	26
Y	US 2,441,446 A (SCHMITTER) 11 MAY 1948 (11/05/48), SEE ENTIRE DOCUMENT	18, 19, 23
A	US 3,257,070 A (KUKLINSKI) 21 JUNE 1966 (21/6/66), SEE ENTIRE DOCUMENT	1-10
☒ 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 document 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 19 MARCH 1998	Date of mailing of the international search report 21 MAY 1998	
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer <i>Ankur Parekh</i> Telephone No (703) 305-3795	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/20101

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	GB 1,026,007 B (THOMAS) 14 APRIL 1966 (14/4/66), SEE ENTIRE DOCUMENT	11-13, 15-17 ----- 14
Y	✓ US 4,383,768 (KUPKA) 17 MAY 1983 (17/5/83), SEE ENTIRE DOCUMENT	14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/20101

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

This international 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 Extra 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 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.:

Remark on Protest

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

INTERNATIONAL SEARCH REPORT

International application No.

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BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-10, drawn to a double taper lock system.

Group II, claim(s) 11-17, drawn to a self-forming labyrinth seal and a method of forming a labyrinth seal.

Group III, claim(s) 11-17, drawn to a mixer gearbox assembly and components thereof.

The inventions listed as Groups I-III do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention is not in the Group II or Group III invention; the special technical feature of the Group II invention is not in the Group I or Group III invention; the special technical feature of the Group III invention is not in the Group I or Group II invention.