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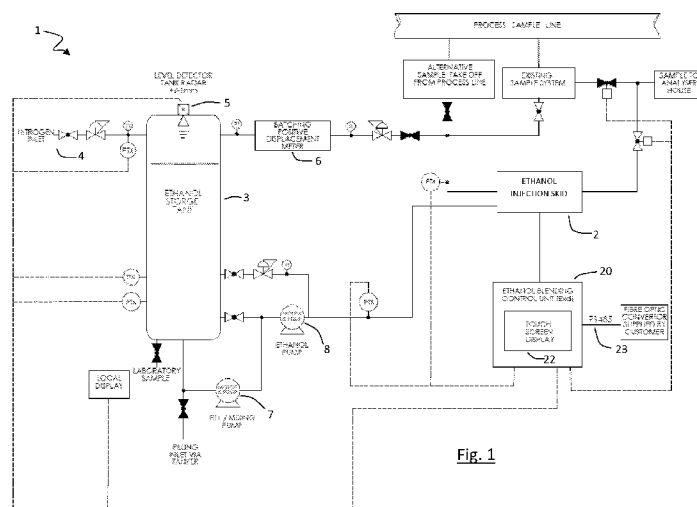


Fig. 1

(57) Abstract: Embodiments of the present invention relate to a method and apparatus for mixing additives into a fluid fuel at a predictable concentration. The method comprises: taking a sample of the fuel; mixing the additive into the sample in metered proportions; testing the sample to determine that the correct amount of additive is present; storing the remaining fuel until it is time for the fuel to be used; and mixing the additive into the remainder of the fuel in the same metered proportions.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
INV. G05D11/13  
ADD.  
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B. FIELDS SEARCHED  
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2010/175313 A1 (MATTINGLY LARRY D [US] ET AL) 15 July 2010 (2010-07-15) figures 1-3 paragraphs [0001], [0074] -----	1-11 12-20
X A	US 6 258 987 B1 (SCHMIDT GERALD K [US] ET AL) 10 July 2001 (2001-07-10) figure 1 column 3, line 35 - line 57 -----	1-11 12-20
X A	US 6 679 302 B1 (MATTINGLY LARRY D [US] ET AL) 20 January 2004 (2004-01-20) figures 1-2 column 9, line 58 - line 67 -----	1-11 12-20
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Date of the actual completion of the international search  1 February 2013	Date of mailing of the international search report  08/02/2013
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International application No  
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/039884 A1 (WEATHERS WILL [US] ET AL) 18 February 2010 (2010-02-18)	1-11
A	figure 1 claim 1	12-20
	-----	
X	US 5 600 134 A (ASHE TERRENCE R [CA] ET AL) 4 February 1997 (1997-02-04)	1-11
A	figures 1-2 column 1, line 54 - column 2, line 48	12-20
	-----	
X	US 2005/022446 A1 (BRUNDAGE SCOTT R [US] ET AL) 3 February 2005 (2005-02-03)	1-11
A	claim 1; figure 1	12-20
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010175313	A1	15-07-2010	
		AU 2010204948 A1	28-07-2011
		CA 2749069 A1	22-07-2010
		DO P2011000225 A	31-10-2011
		EA 201170932 A1	30-12-2011
		EP 2379680 A1	26-10-2011
		JP 2012515229 A	05-07-2012
		KR 20110116139 A	25-10-2011
		US 2010175313 A1	15-07-2010
		US 2012216453 A1	30-08-2012
		WO 2010083077 A1	22-07-2010
-----			
US 6258987	B1	10-07-2001	NONE
-----			
US 6679302	B1	20-01-2004	NONE
-----			
US 2010039884	A1	18-02-2010	NONE
-----			
US 5600134	A	04-02-1997	
		AU 709105 B2	19-08-1999
		CA 2221032 A1	09-01-1997
		DE 69610121 D1	05-10-2000
		DE 69610121 T2	05-04-2001
		EP 0871976 A1	21-10-1998
		JP 3493028 B2	03-02-2004
		JP H11509312 A	17-08-1999
		NO 976004 A	23-02-1998
		US 5600134 A	04-02-1997
		WO 9701183 A1	09-01-1997
-----			
US 2005022446	A1	03-02-2005	NONE
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