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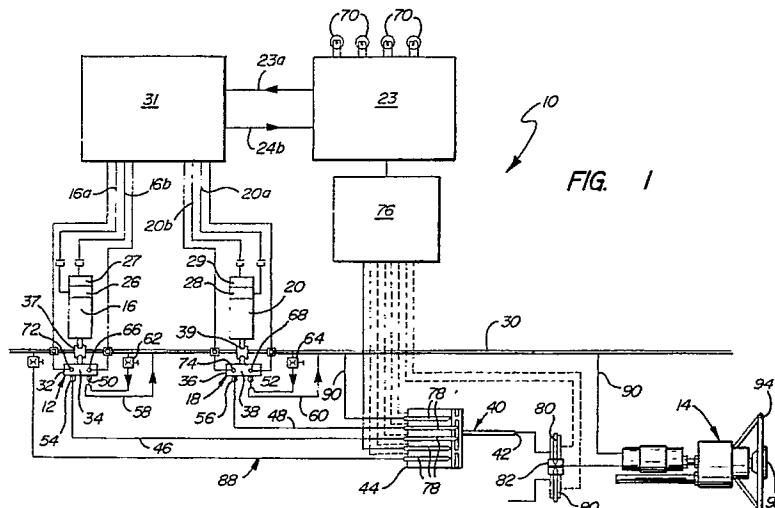
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(54) **Electrostatic spray coating apparatus for applying two component mixture.**

(57) A spray coating apparatus (10) for applying a paint composed of a controlled mixture of two liquid components. A first gear pump (32) is disposed in a spray booth (30) and pumps the first component to an applicator (14). A second gear pump (36) in the spray booth (30) pumps the second component to the applicator (14). A manifold (44) is disposed between the two gear pumps (32, 36) and the applicator (14) for mixing the two paint components. A variable speed motor (16, 20) controls the rate of

fluid pumped by each of the gear pumps (32, 36). Each motor (16, 20) includes an encoder (27, 29) sending feedback signals to an adjustor module (24) which compares the instantaneous speed of each motor (16, 20) with a reference speed, then adjusts the instantaneous speed of each motor (16, 20) to conform with the reference speeds thereby adjusting the ratio between the volumetric flow rates of the first and second components with respect to a reference ratio.



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EUROPEAN SEARCH REPORT

Application Number

EP 90 30 0047

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 209 258 (W.P. OAKES) * Abstract; column 2, line 56 - column 3, line 15; column 3, lines 48-62; column 4, lines 36-41; column 5, lines 42-52; figures 1a,1b *	1-4,21-23	B 05 B 5/16
A	US-A- 209 258 ---	6-8,15,16	
A	US-A- 294 673 (PORTER et al.) * Column 13, line 67 - column 14, line 12; column 14, lines 15-33; column 15, lines 34-67; column 16, lines 16-22,62-66; column 17, line 61 - column 18, line 32; column 18, lines 46-58; column 19, lines 6-13; figures 1,9-14 *	1-3,6-8,10,15,21,23,28	
A	US-A-4 167 151 (MURAOKA et al.) * Column 4, line 5 - column 5, line 30; column 10, lines 12-29; figures 1,3,5,6 *	1,7-9,12,21,23,26	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A	US-A-4 019 653 (SCHERER et al.) * Column 3, lines 38-42,51-60; column 4, lines 25-29,43-47; column 4, line 60 - column 5, line 10; column 8, line 48 - column 9, line 5 *	1,6-9,15-17,19,21,27	B 05 B G 05 D
A	US-A-3 147 137 (GLASS et al.) * Column 2, lines 49-57; column 5, lines 68-75; column 6, lines 10-38; figures 2,4-6 *	6-9,16-19,22,27	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19-06-1991	Examiner BREVIER F.J.L.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

X LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims 1-4,6-12,15-28: Apparatus and method for controlling a mixture of at least 2 components to be sprayed onto a workpart.
2. Claims 5,13,14: Arrangement of motors for a spray tooth.

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)		
A	EP-A-0 112 638 (ADHESIVE ENGINEERING CO.) * Abstract; page 4, lines 27-32; claims 4,8; figure 4 * ---	11,12, 20,24- 26			
A	US-A-4 614 164 (KATO et al.) * Column 3, lines 8-15; figure 1 * ---	5			
A	FR-A-1 262 434 (METAALGESELLSCHAFT AKTIENGES.) * Page 1, left-hand column, last paragraph; page 2, right-hand column, second paragraph; figures 1,9 * -----	13,14			
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)		
Place of search THE HAGUE		Date of completion of the search 19-06-1991	Examiner BREVIER F.J.L.		
<table border="0"><tr><td>CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</td><td>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document
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