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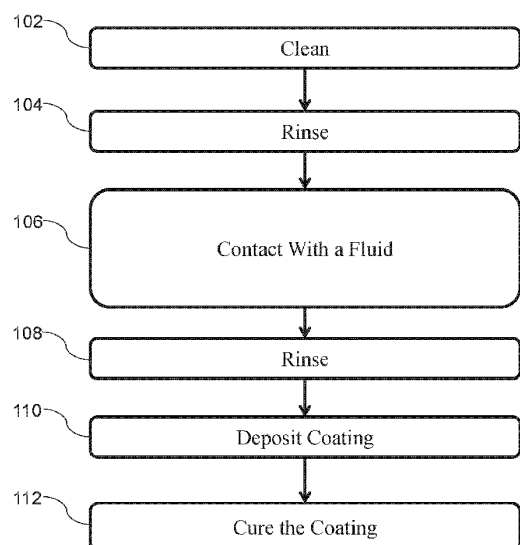
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(54) **METALLIC SUBSTRATE TREATMENT METHODS AND ARTICLES COMPRISING A PHOSPHONATE FUNCTIONALIZED LAYER**

(57) Metallic substrate treatment methods and articles comprising a phosphonate functionalized layer are provided. The method comprises contacting a metallic substrate comprising at least one of aluminum and an aluminum alloy with a fluid to form a phosphonate functionalized layer on at least a region of the metallic substrate. The fluid comprises at least one of a phosphonate containing acid and a derivative thereof. At least one of the phosphonate containing acid and the derivative thereof comprises a pKa of a first acidic proton. The fluid comprises a pH at least 0.5 pH value greater than the pKa of the first acidic proton. The article comprises a metallic substrate comprising aluminum or an aluminum alloy and a phosphonate functionalized layer on at least a region of the metallic substrate.



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FIG. 1



EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	DE 196 54 642 A1 (METALLGESELLSCHAFT AG [DE]) 17 September 1998 (1998-09-17) * abstract * * example 1 * * page 2, lines 55-61 * -----	1-14	
X	US 3 630 790 A (SCHMIDT DONALD L ET AL) 28 December 1971 (1971-12-28) * abstract * * examples 1-12 * * column 5, lines 17-41 * -----	1-14	
X	US 5 103 550 A (WEFERS KARL [US] ET AL) 14 April 1992 (1992-04-14) * abstract * * examples 2, 8 * -----	1-4, 6-9, 11, 12, 14	TECHNICAL FIELDS SEARCHED (IPC) C23F C23C

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The present search report has been drawn up for all claims

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

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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