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(54) **CONVERSION OF CARBOHYDRATES TO HYDROXYMETHYLFURFURAL (HMF) AND DERIVATIVES**

(76) Inventors: **Alexandra J. SANBORN**, Lincoln, IL (US); **Stephen J. Howard**, Sherman, IL (US)

Correspondence Address:
**MCDERMOTT WILL & EMERY LLP**
**600 13TH STREET, N.W.**
**WASHINGTON, DC 20005-3096 (US)**

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(57) **ABSTRACT**

A method of producing substantially pure HMF, HMF esters and other derivatives from a carbohydrate source by contacting the carbohydrate source with a solid phase catalyst. A carbohydrate starting material is heated in a solvent in a column and continuously flowed through a solid phase catalyst in the presence of an organic acid, or heated with the organic acid and a solid catalyst in solution to form a HMF ester. Heating without organic acid forms HMF. The resulting product is purified by filtration to remove the unreacted starting materials and catalyst. The HMF ester or a mixture of HMF and HMF ester may then be oxidized to 2,5-furandicarboxylic acid (FDCA) by combining the HMF ester with an organic acid, cobalt acetate, manganese acetate and sodium bromide under pressure. Alternatively, the HMF ester may be reduced to form a furan or tetrahydrofuran diol.
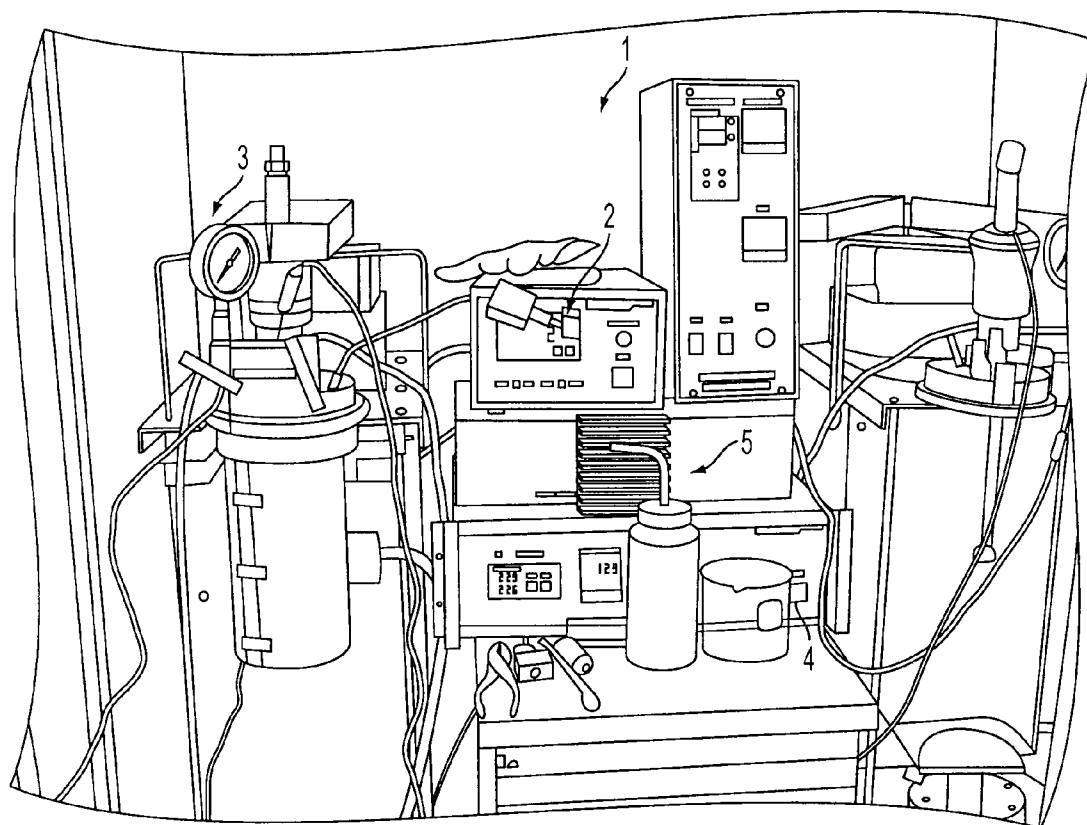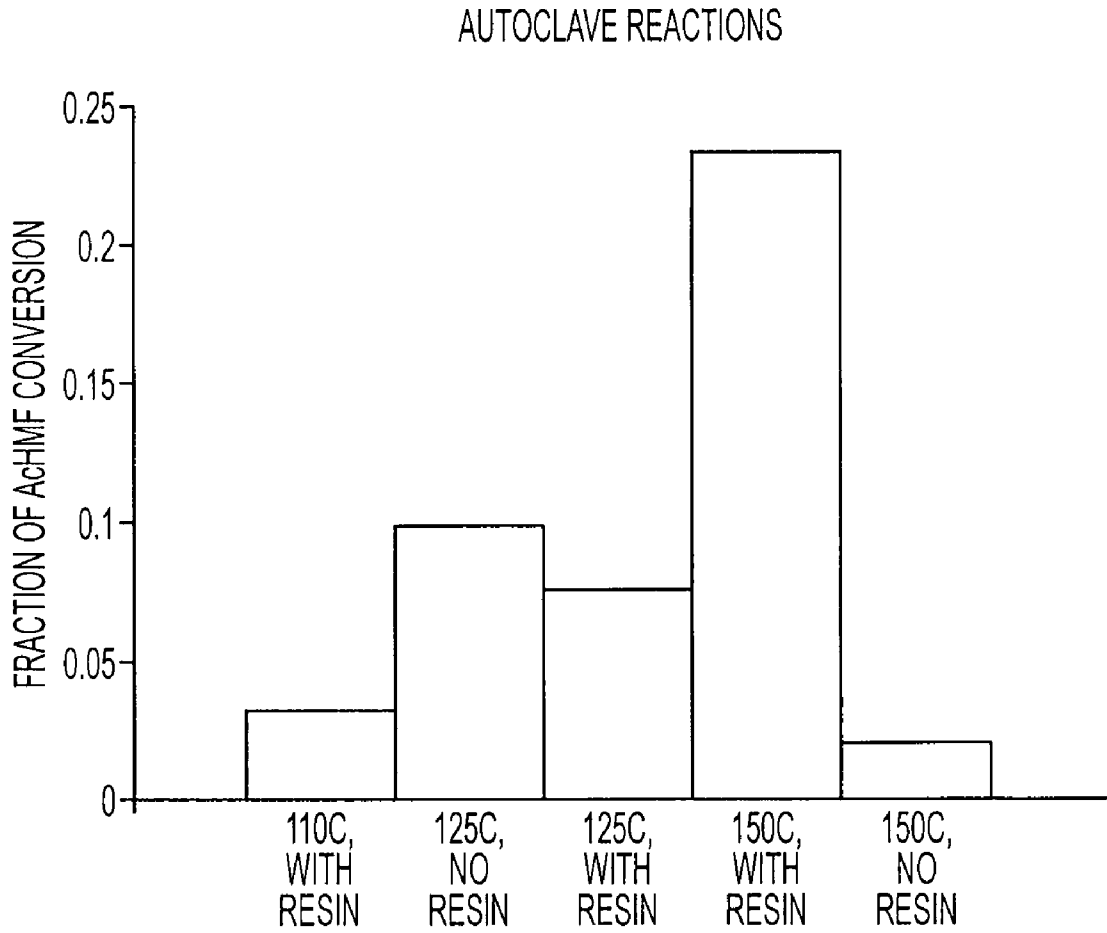
FIG. 1
PRIOR ART

AUTOCLAVE REACTIONS

FIG. 2
PRIOR ART

ACETIC ACID COLUMN RESULTS



FIG. 3

FIG. 4

# DOCKET ALARM
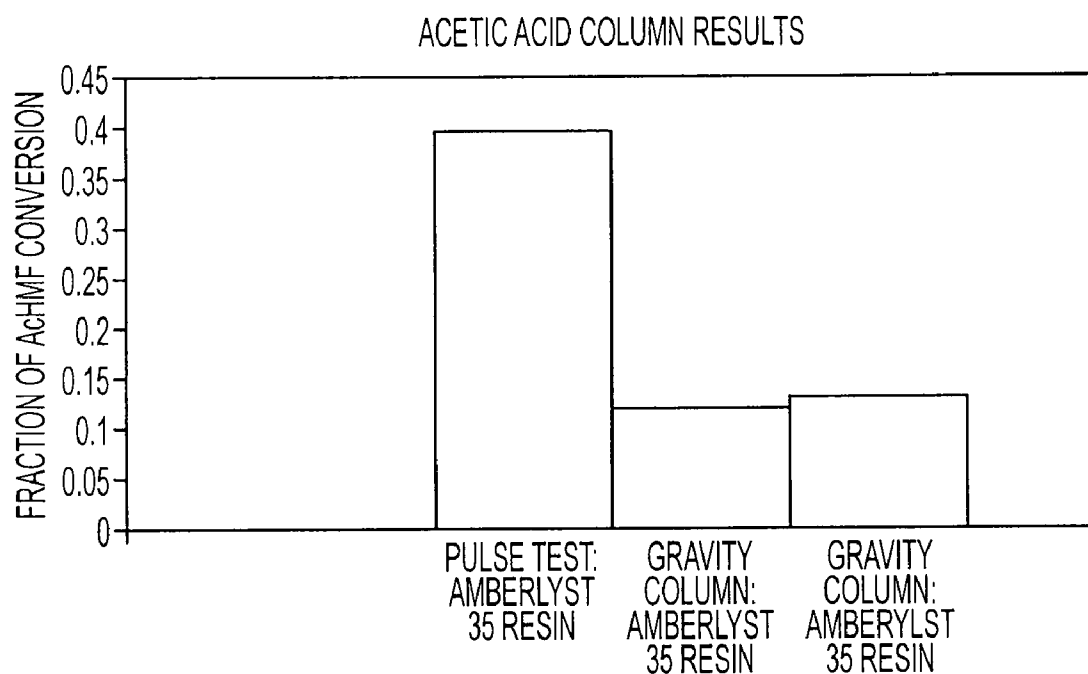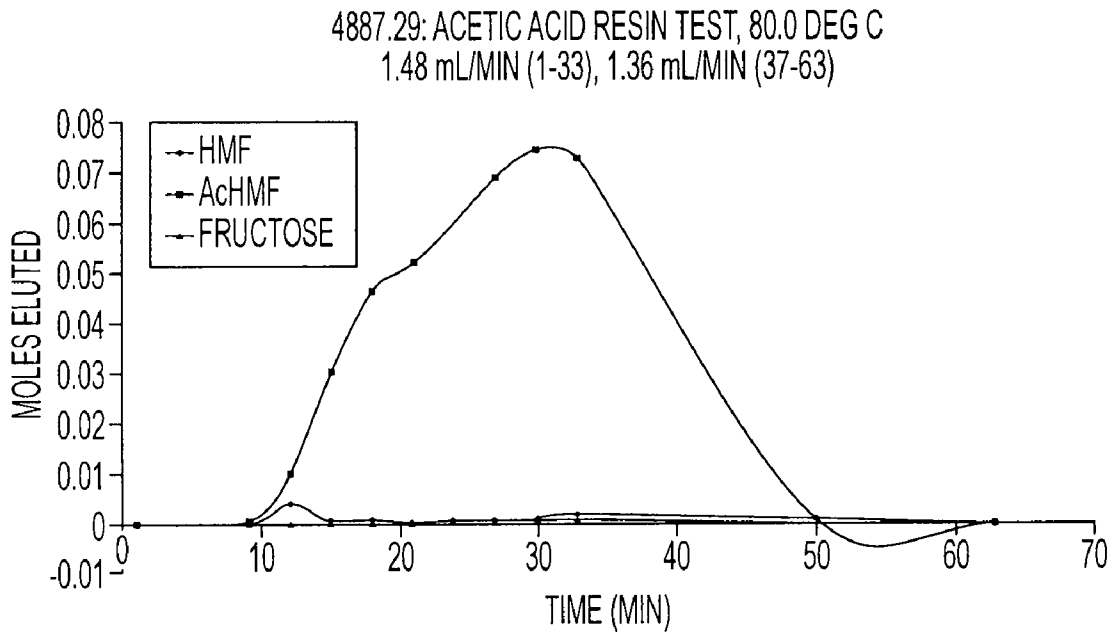
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