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(54) Title: OPTIMISATION OF ALLOY PROPERTIES

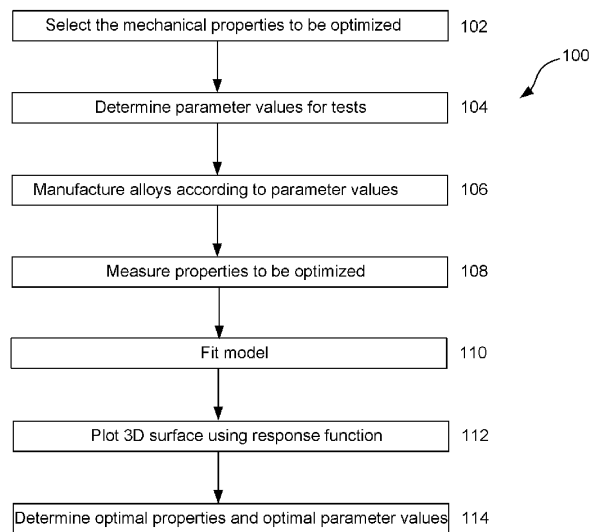


Figure 1

(57) Abstract: A method of optimising one or more physical properties of an alloy comprises conducting a plurality of trials per an experimental design on a plurality of candidate alloys. Each trial comprises measuring a plurality of values of each physical property of the candidate alloys for different values of a plurality of parameters, wherein the parameters comprise respective concentrations of the two or more constituents, and one or more process parameters. The method further comprises fitting the plurality of values of the physical property and the plurality of parameters to a response surface model; and determining, from the fitted response surface model, optimised values of the parameters that optimise the respective responses; wherein the response surface model describes a non-linear relationship between a time integral of each of the physical property and a linear combination of non-linear functions of the plurality of parameters.

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