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Little et al.

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(54) **COMPLEX CONFIGURATION PROCESSING USING CONFIGURATION SUB-MODELS**

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(75) Inventors: **Nathan E. Little**, Austin, TX (US);
Brandon M. Beck, Austin, TX (US);
Brian K. Showers, Cedar Park, TX (US)

(73) Assignee: **Trilogy Development Group, Inc.**,
Austin, TX (US)

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(51) **Int. Cl.**
G06F 17/00 (2006.01)
G06N 5/04 (2006.01)

(52) **U.S. Cl.** **706/60**

(58) **Field of Classification Search** 706/1,
706/15, 45, 46, 47, 6, 20, 8, 28, 60; 700/1,
700/90, 30; 707/3, 10; 709/218; 710/8;
703/25; 705/56, 26, 103

See application file for complete search history.

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Primary Examiner—Michael B. Holmes

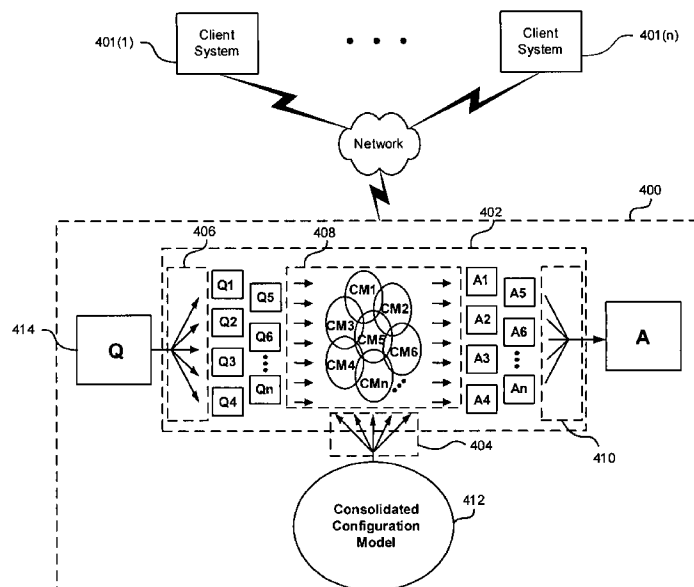
Assistant Examiner—Peter Coughlan

(74) *Attorney, Agent, or Firm*—Hamilton & Terrile, LLP;
Kent B. Chambers

(57) **ABSTRACT**

A configuration model dividing and configuration sub-model inference processing system and procedure addresses the issue of configuration model and query complexity by breaking a configuration problem down into a set of smaller problems, solving them individually and recombining the results into a single result that is equivalent to a conventional inference procedure. In one embodiment, a configuration model is divided into configuration sub-models that can respectively be processed using existing data processing resources. A sub-model inference procedure provides a way to scale queries to larger and more complicated configuration models. Thus, the configuration model dividing and configuration sub-model processing system and inference procedure allows processing by a data processing system of configuration models and queries whose collective complexity exceeds the complexity of otherwise unprocessable conventional, consolidated configuration models and queries.

46 Claims, 8 Drawing Sheets



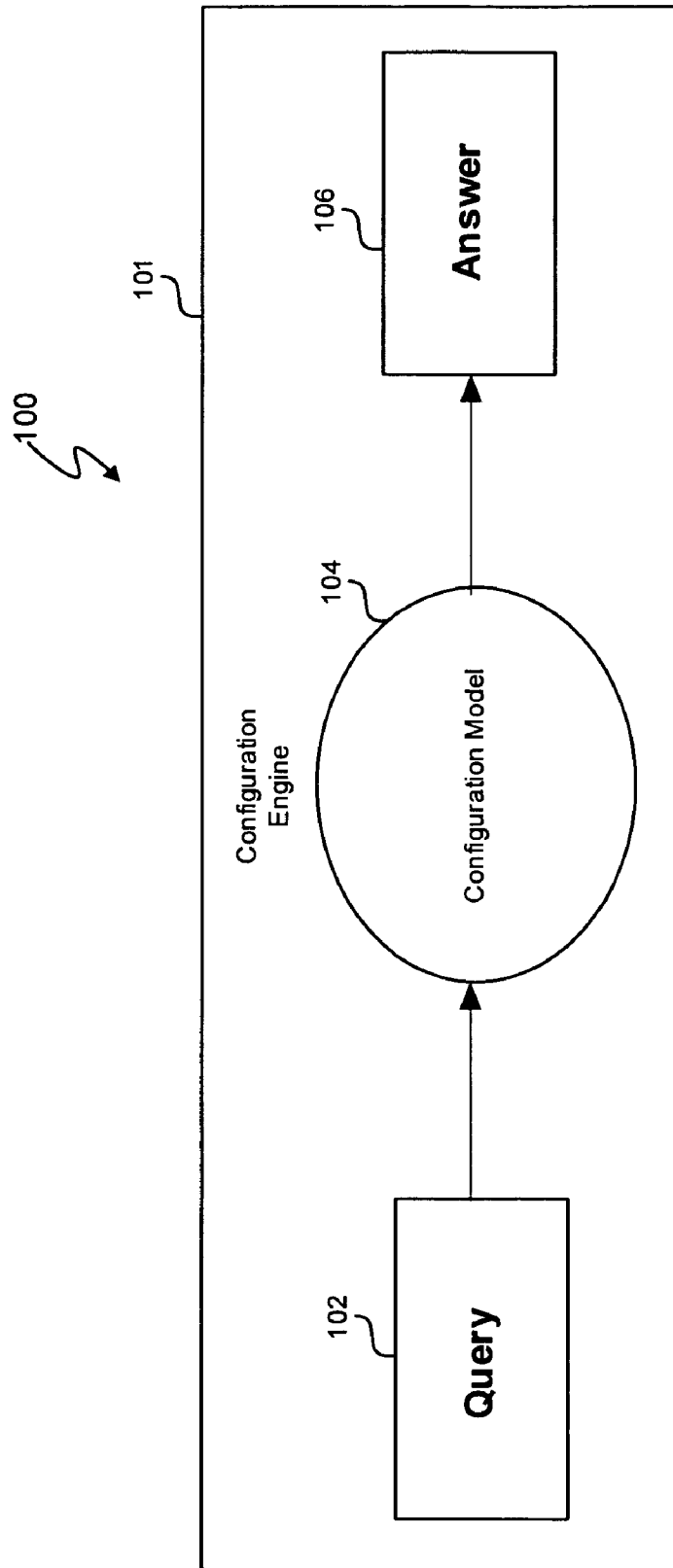


Figure 1 (prior art)

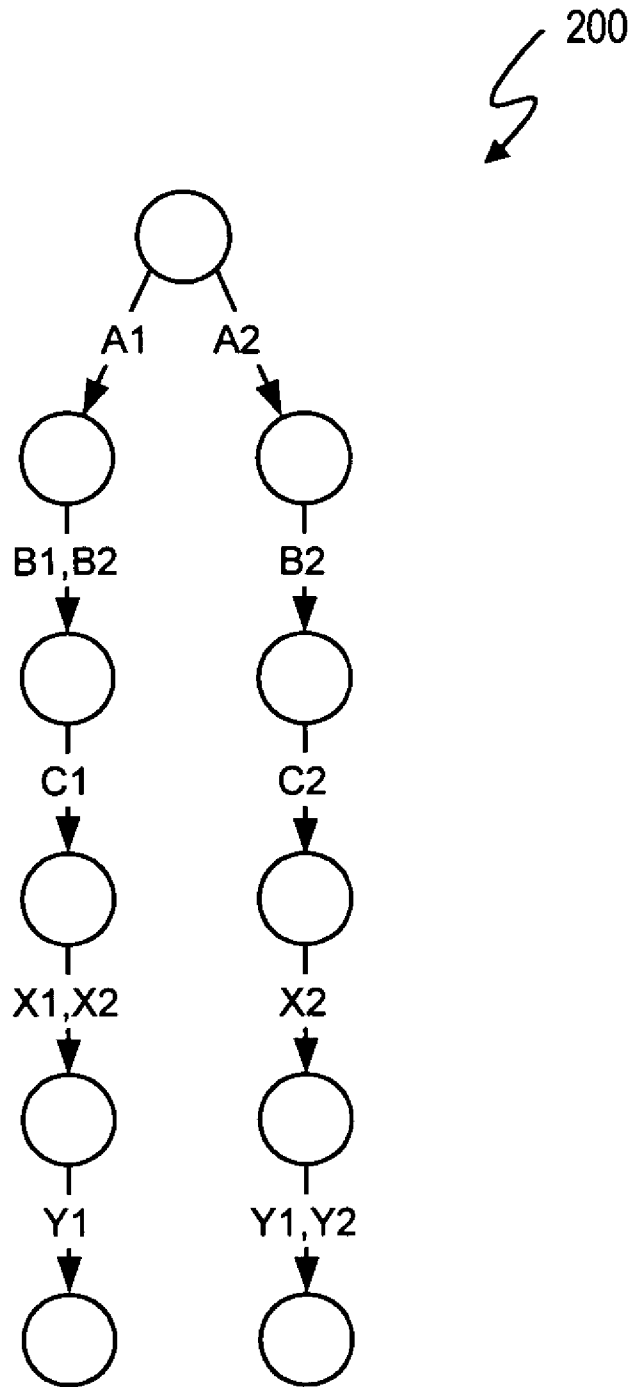


Figure 2 (prior art)

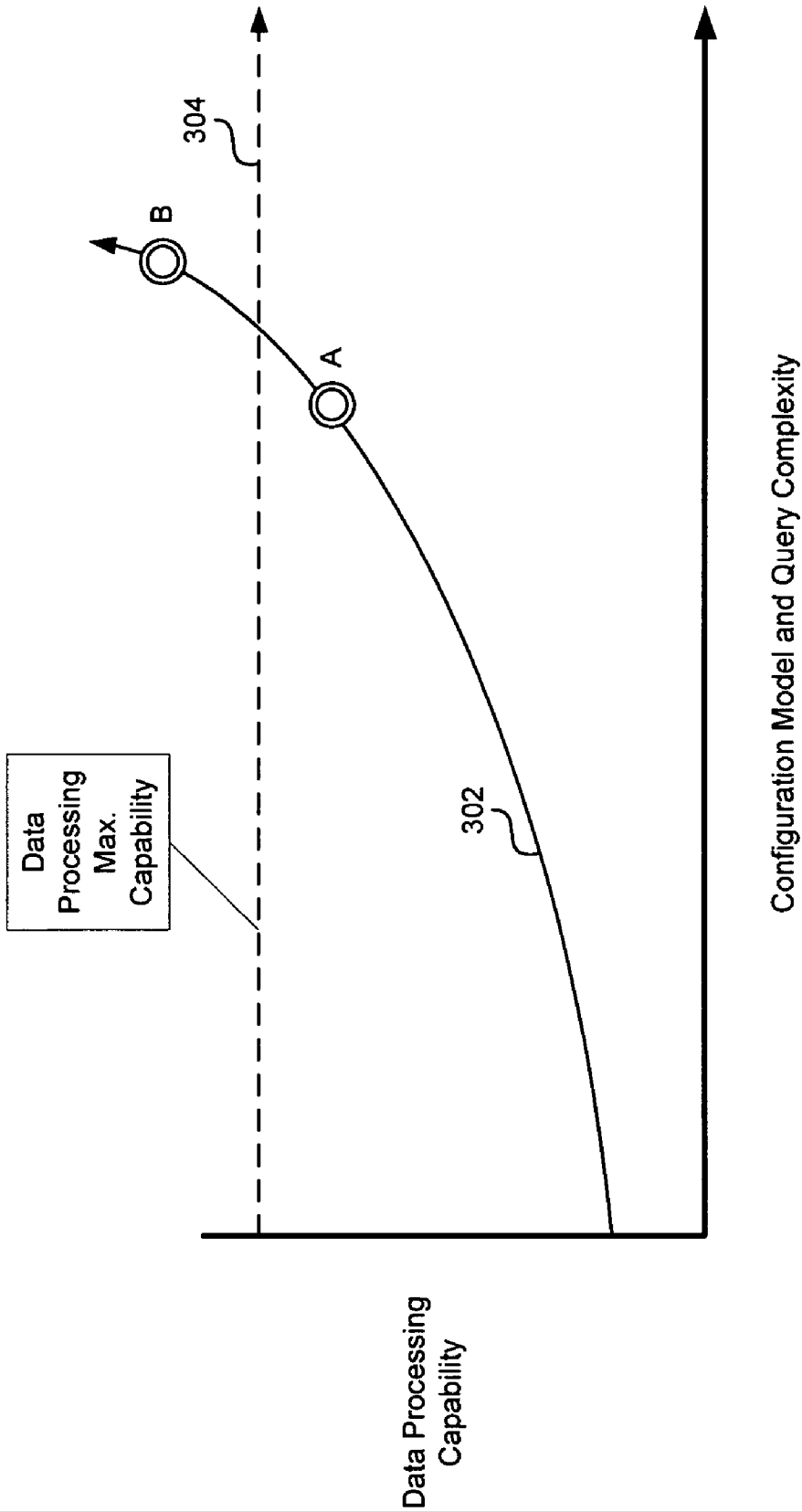


Figure 3 (prior art)

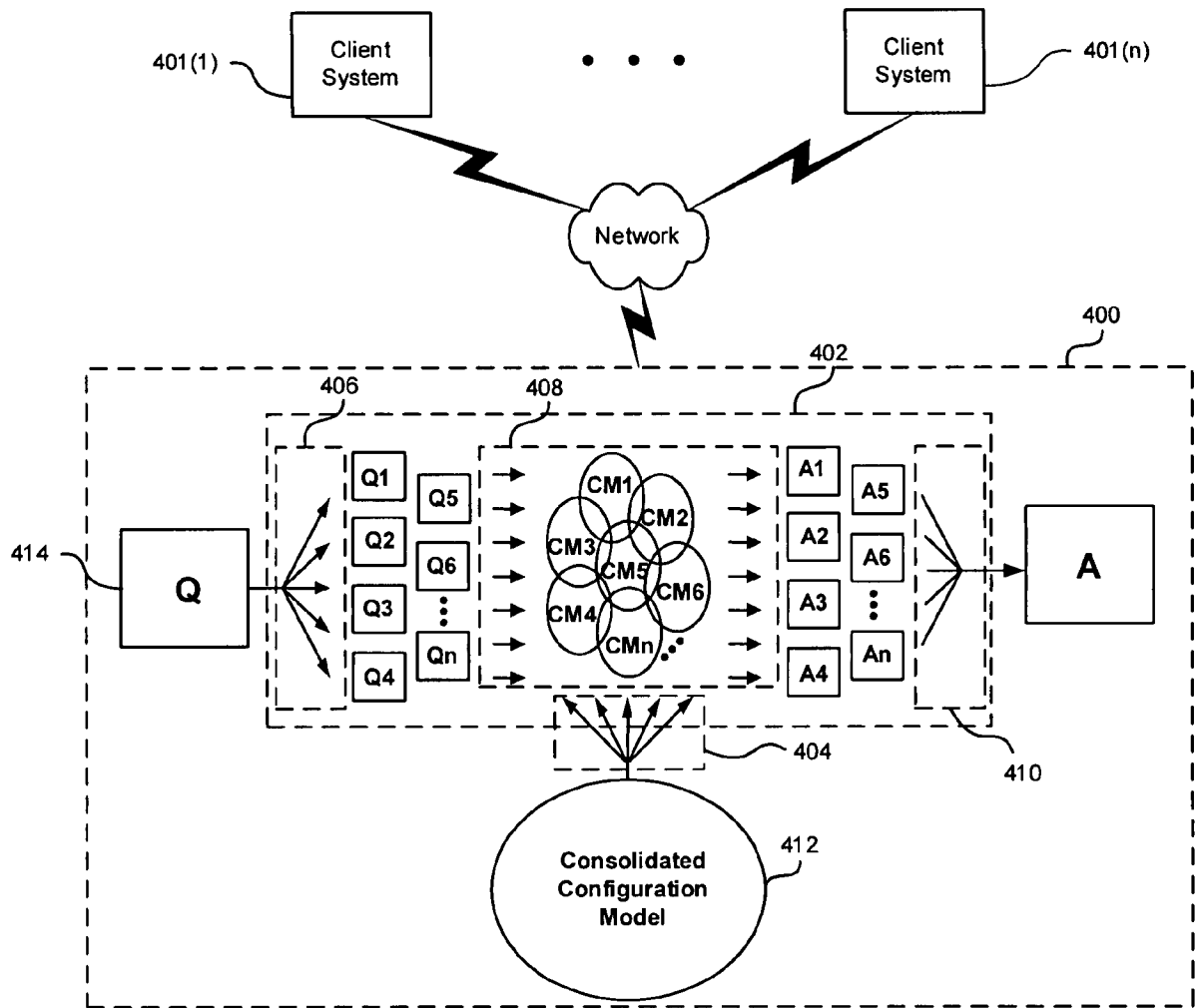


Figure 4

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