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**Little et al.**

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

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**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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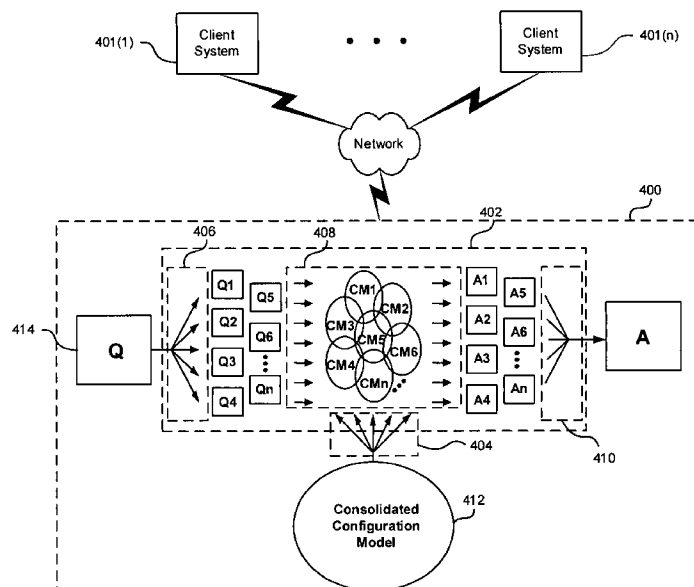
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(57) **ABSTRACT**

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**



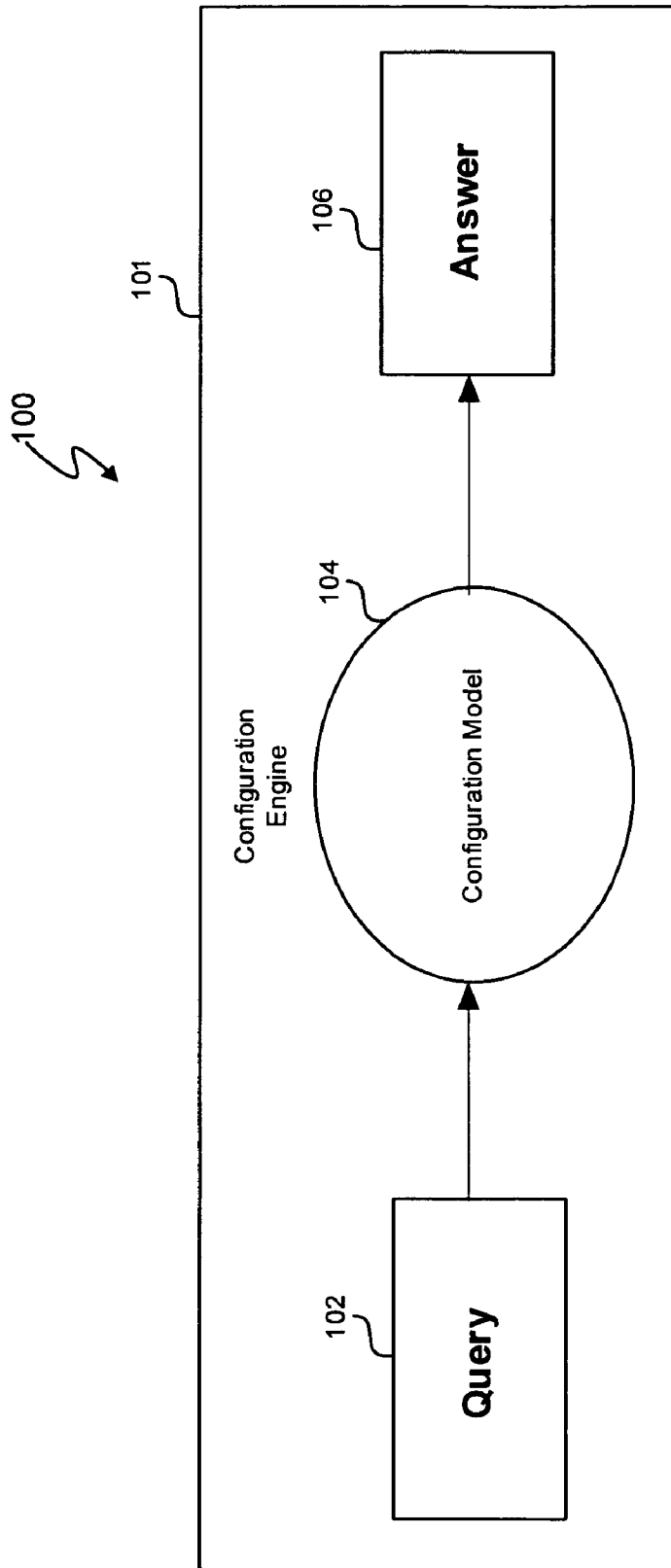


Figure 1 (prior art)

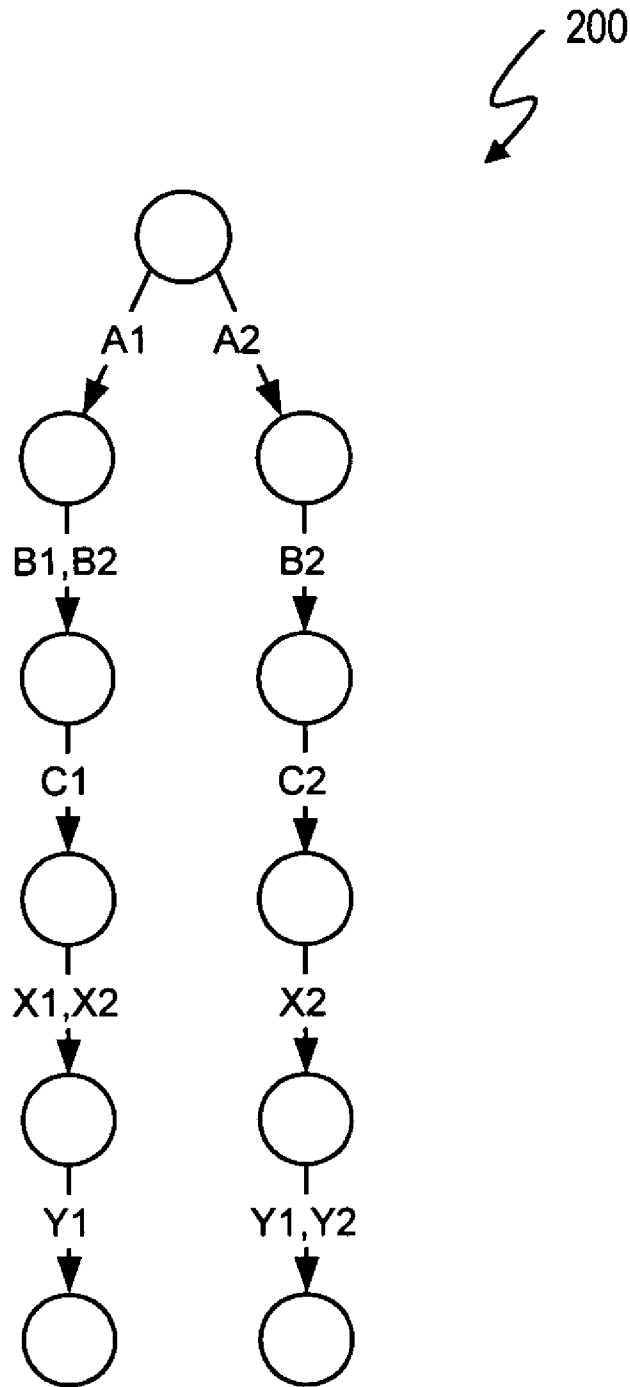


Figure 2 (prior art)

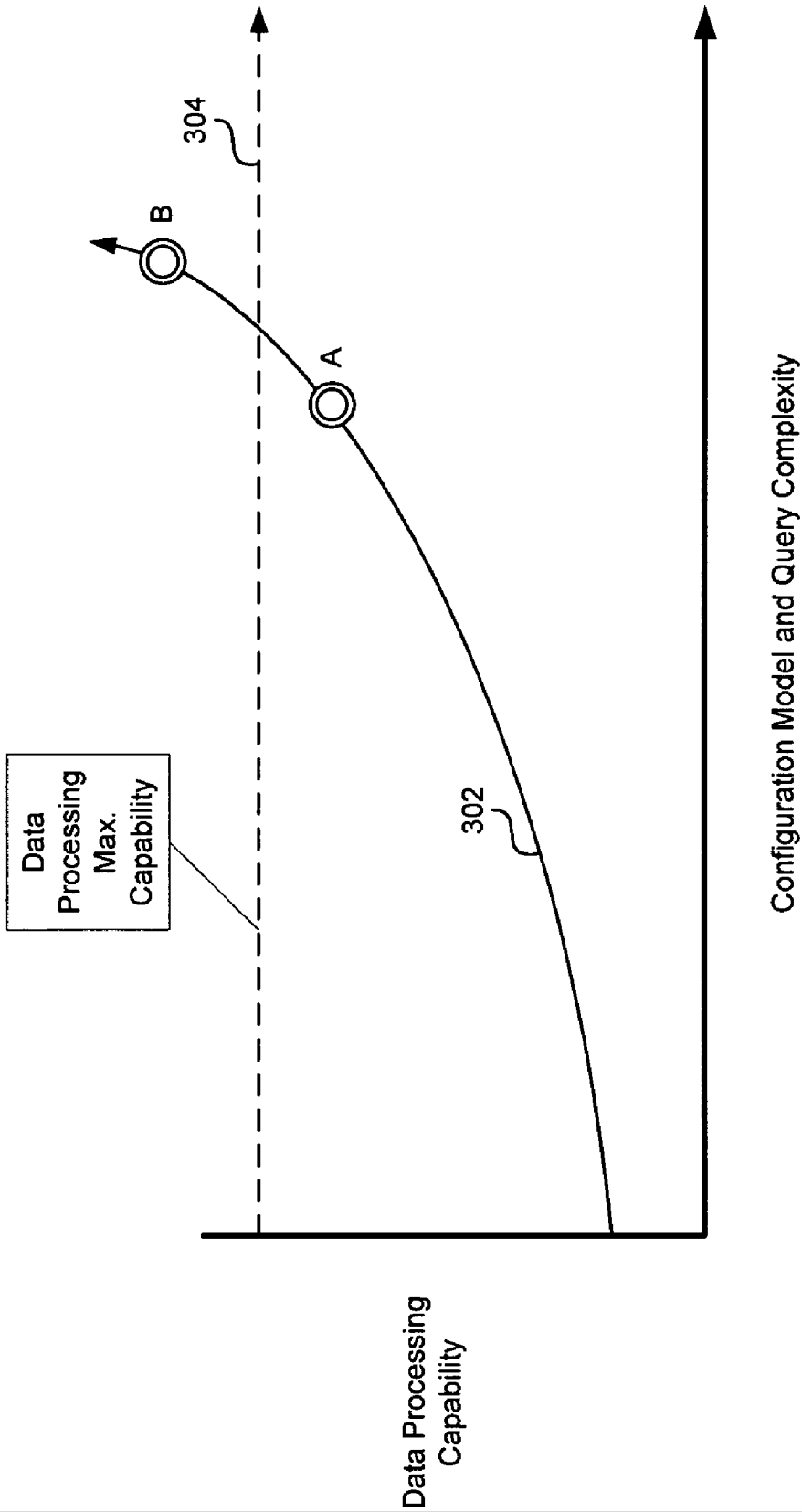


Figure 3 (prior art)

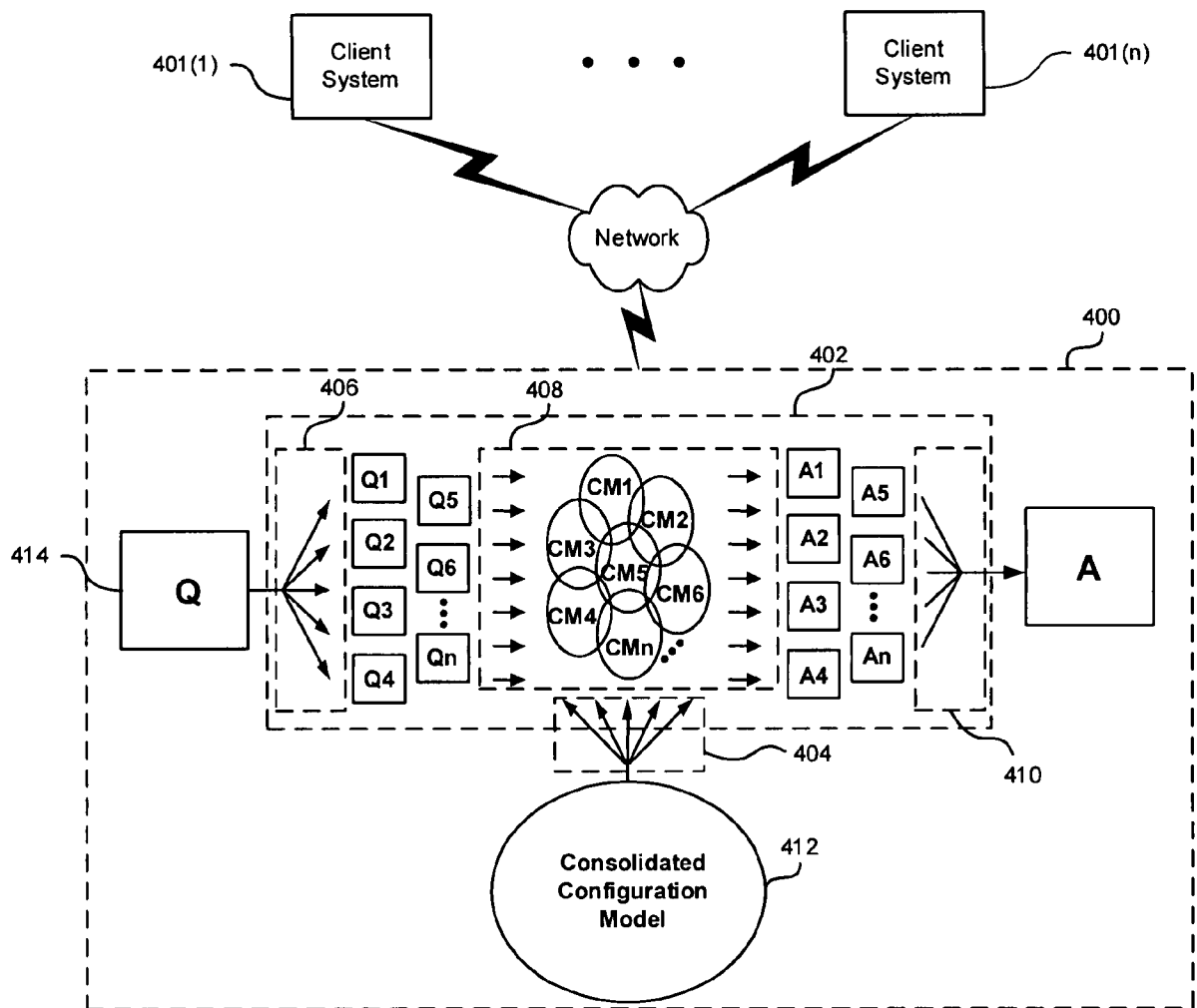


Figure 4

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