

EXHIBIT 4



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(54) **SIMILARITY-BASED ACCESS CONTROL OF DATA IN A DATA PROCESSING SYSTEM**

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(52) **U.S. Cl.** **707/698**; 707/821; 707/822

(58) **Field of Classification Search** 707/609,
707/821-828, 697-698

See application file for complete search history.

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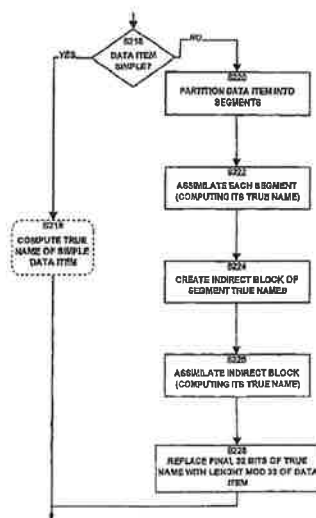
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(57) **ABSTRACT**

Similarity of data items is determined by analyzing corresponding segments of the data items. A function is applied to each segment of a data item and the output of that function is compared to the output of the same function applied to a corresponding segment of another data item. A function may be applied to the output of the functions. The functions may be hash or message digest functions.

56 Claims, 31 Drawing Sheets



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