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(54) **ENHANCED DATA STORAGE AND RETRIEVAL DEVICES AND SYSTEMS AND METHODS FOR UTILIZING THE SAME**

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This patent is subject to a terminal disclaimer.

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See application file for complete search history.

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(57) **ABSTRACT**

The invention relates generally to store information on magnetic or optical storage media by using one or more novel approaches alone or in combination. These novel approaches are capable of using at least one code which may comprise more than two values (FIG. **4***d*, **43**). A first series of approaches for the storage of information applies generally to optical recording and reproducing system (FIGS. **7-10**, optical media **66**), while a second series of approaches applies generally to electric or magnetic recording and reproducing systems (FIG. **1-2**, magnetic medium **1**), Each series of approaches is capable of storing information data in one or more codes (FIG. **4***d*, **42***a*, **42***b*, **42***c*, **42***d*) and the use of at least one higher order code which is different from the traditional binary code of "0" and "1".

15 Claims, 22 Drawing Sheets