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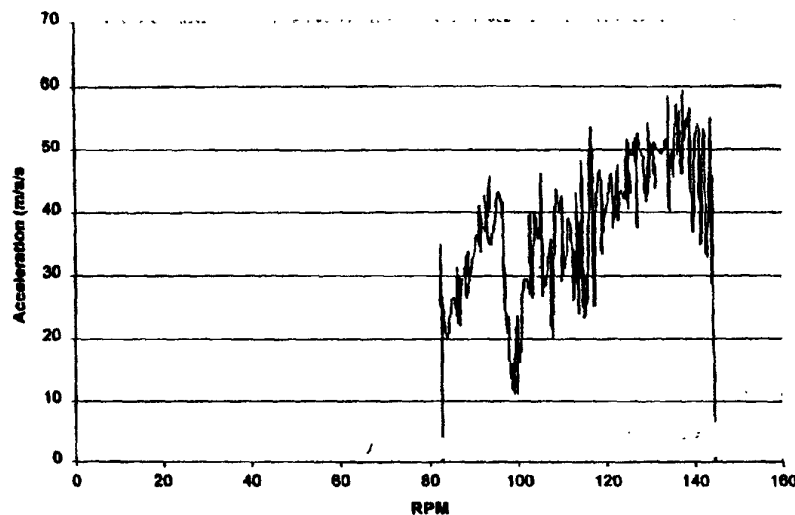
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(54) **Rotary drag-type drill bits and methods of designing such bits**

(57) The invention provides a rotary drag-type drill bit in which the relationship of torque to rotary bit speed is such that torque generally increases with bit speed. Such a bit has a reduced tendency to exhibit the phenomenon known as "stick-slip" while drilling, when compared with bits having a different torque /speed characteristic, as a result of the positive damping effect of the

torque/speed relationship. One method of designing such a drill bit comprises ascertaining the torque/rotary bit speed relationship, or other correlated relationships, for a number of different drill bit designs and then selecting from those designs a design having the desired type of relationship. Examples of drill bit structures specifically designed to achieve the desired torque/speed relationship are also disclosed.

Fig.1



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EUROPEAN SEARCH REPORT

Application Number
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Place of search THE HAGUE		Date of completion of the search 14 February 2001	Examiner Garrido Garcia, M
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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