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(54) **MULTIPLE LAYER OPTICAL STORAGE DEVICE**

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(57) **ABSTRACT**

A multi-layer optical information storage system comprising several layers of generally flat waveguide, arranged one on top of the other in a stack. The reading energy is projected through the layers perpendicularly, and is focussed onto the layer to be read. A detector disposed at the side of the layers detects the energy scattered or reflected from information or data points within the layer. The points within the layers may be in the form of defects of a type that can carry the information assigned to each point, generally by means of the presence or absence of the defect. The energy scattered or reflected from the defects in any specific layer is preferably contained within that layer because of waveguiding properties imparted to the layers by means of a graded or stepped index structure.