ABSTRACT

SURFACE COATING FOR HARD DISK DRIVE CAVITY

A functional coating that deposited to the Hard Disk Drive (HDD) enclosure inner surface and components that assemble the Head Disk Assembly (HDA) is disclosed. An application is disclosed for the coating of hard disk drive (HDD) components within the head disk assembly (HDA) in general and to the use of thin coatings that may be nanometer or micrometer in thickness and comprise nano-particles on the individual components with surfaces exposed within the clean cavity of all HDA. The use of coatings increases the reliability of the HDD against data loss since the coatings have the properties of reducing the number and size of particles on the coated components and of improving the efficiency of removing particles deposited on the surfaces of the coated component using the industry's existing aqueous cleaning systems. The properties of the coatings are adjusted to improve the other surface properties of wear resistance, corrosion resistance, electrostatic efficiency, and conductivity. Multiple coatings may be used, one or more of that use nano-particles, to meet all of the HDD requirements, including an exterior coating for reduction in the number and size of particles within the HDA.

FIG. 3