This Sheet Has Been Replaced



THIS SHEET HAS BEEN REPLACED

PATENT

INTEGRAL HUB AND DISK CLAMP FOR A DISK DRIVE STORAGE DEVICE

ABSTRACT

A disk drive contains an integrally-formed one-piece hub, clamp and rotor housing, which is preferably injection-molded plastic. In the preferred embodiment, the hub includes a hollow cylindrical portion for surrounding a set of bearings mounted on a central shaft, and a flange portion extending from the middle of the cylinder and supporting a single disk. Compliant clamping fingers on the upper surface of the flange engage the disk through its central hole. The fingers are inclined slightly outward, and include a pawl at the end of each finger. During assembly, the disk is forced over the pawls of the fingers until they engage the disk. The fingers, being slightly elastic, will deform to permit the disk to slide over the pawls, and then return to lock the disk in place. The fingers automatically center the disk about the hub axis, without the need for centering tools. The hub also serves as a housing for the rotor of a spindle motor which rotates the disk. A back iron ring and permanent magnets are attached to the underside of the flange at its outer edge to form the rotor. An electromagnetic stator assembly surrounds the disk axis in the annular space defined by the flange, the permanent magnets and back iron at the outer edge, and the cylindrical portion of the hub at the inner edge.