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(54) **Title: NUCLEIC ACID PURIFICATION DEVICE AND SYSTEM**

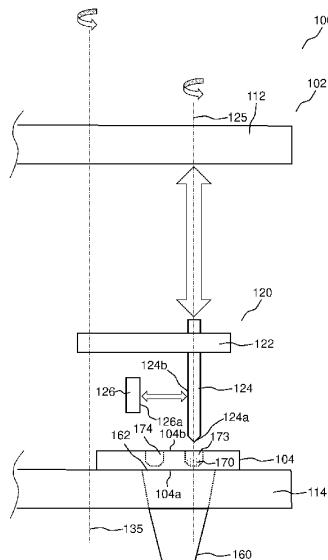


FIG. 1

(57) **Abstract:** A nucleic acid purification device includes a support structure and a head assembly supported by a head-assembly-support portion of the support structure, wherein the head assembly comprises a frame member, an elongated magnetizable member having a central axis extending longitudinally therethrough, and a permanent magnet moveable to engage with or disengage from the elongated magnetizable member, wherein the elongated magnetizable member is rotatable about the central axis relative to the frame member, and longitudinally translatable along the central axis with respect to the head-assembly-support portion. The head assembly is operable to engage the permanent magnet with the elongated magnetizable member to induce magnetism in the elongated magnetizable member and move the elongated magnetizable member with induced magnetism to translate along the central axis. The head assembly is operable to disengage the permanent magnet from the elongated magnetizable member to lose its induced magnetism and rotate the elongated magnetizable member without induced magnetism about the central axis. The support structure may have a stage portion for supporting a microfluidic chip, wherein at least one well of the microfluidic chip contains a plurality of magnetic particles.

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