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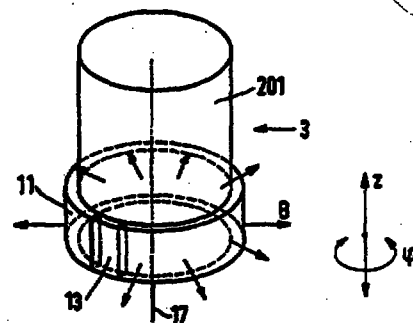
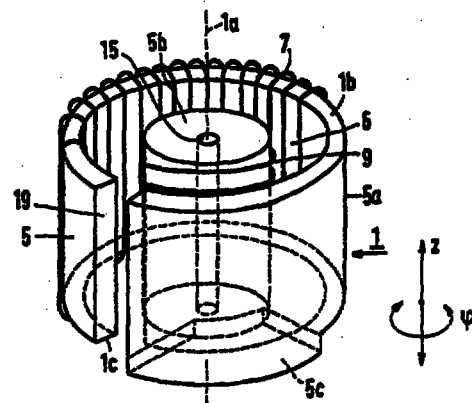
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(54) Title: ELECTROMAGNETIC ACTUATOR HAVING A CYLINDRICAL TRANSLATION COIL AND A TOROIDAL ROTATION COIL, ACTUATOR UNIT COMPRISING THE ACTUATOR AND A MEASUREMENT SYSTEM, AND MACHINE COMPRISING THE ACTUATOR OR THE ACTUATOR UNIT

(57) Abstract

An electromagnetic actuator (1) comprises two actuator sections which are translatable relative to one another along an actuator axis (1a) and which are rotatable about the actuator axis, a first actuator section (1) comprising a coil system and a second actuator section (3) comprising a permanent magnet system for cooperation with the coil system via an air gap. The coil system is arranged on a magnetically conductive yoke (5) and comprises a cylindrical translation coil (9) and a toroidal rotation coil (7), which are coaxial with the actuator axis. The permanent magnet system comprises an annular magnet (11), which is coaxial with the actuator axis, for cooperation with both the translation coil and the rotation coil. The magnet has a radial magnetisation (B) which is interrupted by an annular segment (13). The magnetically conductive yoke has a central core (5b) around which the translation coil is arranged and a shell (5a) on which the rotation coil is disposed. The core and shell bound a space within which the annular magnet is disposed, the magnetically conductive yoke comprising a bridge (5c) connecting the central core and the shell.



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