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(71)Name of Applicant :

1)NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY

Address of Applicant :19, Knowledge Park-II, Institutional Area, Greater Noida – 201306, Uttar Pradesh, India. -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)SHAILENDRA KUMAR VERMA

Address of Applicant :Department of Mechanical Engineering, Noida Institute of Engineering & Technology, Greater Noida. Greater Noida -----

(57) Abstract :

A programmable tool head switching apparatus (10) for CNC milling machines includes a rotatable tool magazine (14) with multiple tool heads (16), vertically movable spindle housing (22), and locking mechanism (28). A lead screw (58) and guide rail (54) control vertical motion. Integrated sensors provide real-time feedback, ensuring precise tool switching and compatibility with CNC systems.

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