

DEVICE FOR CLAMPING AND RELEASING SPINDLE UNIT QUILL

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Basic characteristics, essence of the development.

The essence of the development lies in improving the device for clamping and releasing the spindle unit (SU) quill of small drilling, and milling and drilling machine tools by guaranteed declamping of sleeves of tangential clamping based on the differential screw mechanism, resulting in shockless release of the SU quill.

Patentable and competitive results.

1. Ukraine pat. 2000010242, IPC 7 B23 B23/00; B23 B31/06. Device for Clamping and Releasing Spindle Unit Quill / O.S. Kroll, V.I. Sindieiev; Appl. 17.01.2000; Publish. 16.04.2001, Bull. № 1. Applicant and owner Volodymyr Dahl East Ukrainian National University.

Comparison with world analogues.

The proposed design provides shockless release of the spindle unit quill, so that damage of contact cylindrical surfaces of the shape-generating unit of the machine tool is excluded. The invention allows clamping and releasing without shocks, with smooth withdrawal of clamping elements. At the level of international analogues, it differs from the USSR a. c. №1454639 B23 B23/00 of 18.02.87, bull. №4, 1989. Device for Clamping and Releasing of Spindle Unit Quill, which does not provide withdrawal of clamping elements from the quill by a spring, which leads to appearance of scuffing on the outer surface of the quill and degenerate accuracy of the shape-generating unit of the machine tool. The result is increased quill wear and decrease in quality of details' manufacturing.

Economic attractiveness of the development for market promotion, implementation, parameters, price.

Usage of the proposed design of the device for clamping and releasing of the spindle unit quill enhances performance of the machine tool during shape-generation of blanks by 10% at the expense of reducing the amount of specific auxiliary time for equipment settings of the machine tool.

Branches, ministries, departments, enterprises and organizations where the development results are going to be implemented.

Machine tool and tool-making industries.

Development readiness level. 100% of design documentation.

Implementation results. Introduced into the educational process, course and diploma projects.