

ROTARY TABLE OF METAL-CUTTING MACHINE TOOLS

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Basic characteristics, essence of the development.

The essence of the development lies in improving the rotary table by strict synchronization of rotations of the pinion shaft of the table drive – a worm and a faceplate, at which a blank is fixed, leading to increased accuracy of dimensional parameters of the blank.

Patentable and competitive results.

1. Ukraine pat. 95715, IPC F16H1/16. Backlash-Free Worm Gear / O.S. Krol, I.O. Sukhorutchenko, S.V. Shevchenko; Appl. 21.03.2014; Publish. 12.01.2015, Bull. № 1. Applicant and owner Volodymyr Dahl East Ukrainian National University, Application № u2014 02854.

2. Ukraine pat. 99664, IPC B23Q 16/02 Rotary Table for Metal-Cutting Machine Tools / O.S. Krol, I.O. Sukhorutchenko, S.V. Shevchenko; Appl. 19.02.2015; Publish. 10.06.2015, Bull. № 11. Applicant and owner Volodymyr Dahl East Ukrainian National University, Application u2015 01395.

3. Application a 2015 04681 for the invention of Ukraine. Rotary Table / O.S. Krol, I.O. Sukhorutchenko, S.V. Shevchenko; Appl. 14.05.2015.

Comparison with world analogues.

The proposed design provides backlash-free catching of worm threads with worm gear teeth at any wear rate of threads and teeth, and at reverse. At the level of world analogues, e.g. rotary table of the United States Patent № 5862718, cl. B23B 29/24, Jan. 26, 1999), which has means of lifting, fixing and locating in the required angular position, a valve with a handle and a compressor for bringing these tools into action.

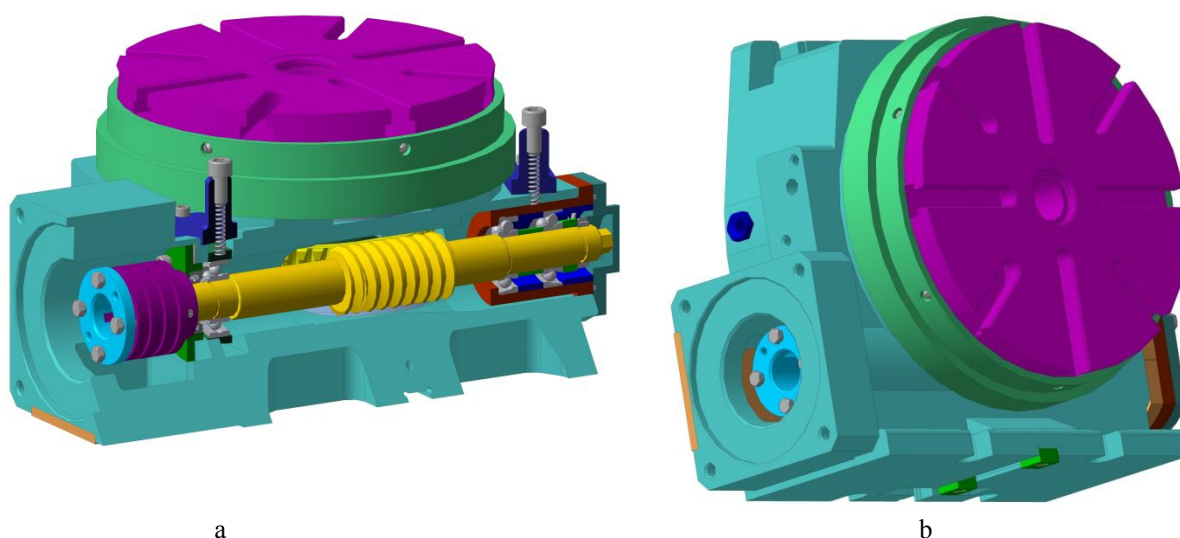
Economic attractiveness of the development for market promotion, implementation, parameters, price.

Usage of the proposed design of backlash-free catching of worm threads with worm gear teeth at any wear rate of threads and teeth, and at reverse enhances the performance of the machine tool during shape-generation of blanks by about 21% at the expense of reducing the amount of specific auxiliary time for equipment settings of the machine tool, as well as increasing (up to 12 nm) positioning accuracy of the rotary table using correction systems;

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.



Rotary Table: a – cutaway; b – general view