COMPUTERIZED TOOL PATH GENERATION

REFERENCE TO RELATED APPLICATIONS

This application corresponds to a divisional of U.S. Patent Application Serial No. 14/013,704, filed August 29, 2013, entitled "COMPUTERIZED TOOL PATH GENERATION", now U.S. Patent No. 9,690,282, which is a continuation-in-part of U.S. Patent Application No. 13/916,918, filed June 13, 2013, now U.S. Patent No. 9,052,704, which is a divisional of U.S. Patent Application No. 13/036,726, filed February 28, 2011, published on August 30, 2012 as U.S. Published Patent Application No. 2012/0221140, now U.S. Patent No. 8,489,224, the disclosures of which are hereby incorporated by reference.

FIELD OF THE INVENTION

The present invention relates to systems and methodologies for automated tool path design and computer controlled machining and products produced thereby.

BACKGROUND OF THE INVENTION

Various systems and methodologies are known for automated tool path design and computer controlled machining.

CLAIMS

1. An automated computer-implemented method for generating commands for controlling a computer numerically controlled milling machine to fabricate an object from a workpiece, the method comprising:

ascertaining the available spindle power of said computer numerically controlled milling machine;

automatically selecting, using a computer, a maximum depth and width of cut, which are a function at least of said available spindle power of said computer numerically controlled milling machine; and

configuring a tool path for a tool relative to said workpiece in which said tool path comprises a plurality of tool path layers whose maximum thickness and width of cut correspond to said maximum depth and width of cut.

2. An automated computer-implemented method for generating commands for controlling a computer numerically controlled milling machine according to claim 1 and also comprising varying at least one additional parameter of said milling machine as a function of said available spindle power.

3. An automated computer-implemented method for generating commands for controlling a computer numerically controlled milling machine according to claim 2 and wherein said at least one additional parameter of said milling machine is at least one of feed speed and rpm.

4. An automated computer-implemented apparatus for generating commands for controlling a computer numerically controlled milling machine to fabricate an object from a workpiece, the apparatus comprising a tool path configuration engine operative for:

ascertaining the available spindle power of said computer numerically controlled milling machine;

automatically selecting, using a computer, a maximum depth and width of cut, which are a function at least of said available spindle power of said computer numerically controlled milling machine; and

configuring a tool path for a tool relative to said workpiece in which said tool path comprises a plurality of tool path layers whose maximum thickness and width of cut correspond to said maximum depth and width of cut.

5. An automated computer-implemented apparatus for generating commands for controlling a computer numerically controlled milling machine according to claim 4 and wherein said automatically selecting also comprises varying at least one additional parameter of said milling machine as a function of said available spindle power.

6. An automated computer-implemented apparatus for generating commands for controlling a computer numerically controlled milling machine according to claim 5 and wherein said at least one additional parameter of said milling machine is at least one of feed speed and rpm.

7. A machined object fabricated from a workpiece using a computer numerically controlled milling machine by:

ascertaining the available spindle power of said computer numerically controlled milling machine;

automatically selecting a maximum depth and width of cut, which are a function at least of said available spindle power of said computer numerically controlled milling machine;

configuring a tool path for a tool relative to said workpiece in which said tool path comprises a plurality of tool path layers whose maximum thickness and width of cut correspond to said maximum depth and width of cut; and

directing a computer controlled machine tool along said tool path.

8. A machined object according to claim 7 and wherein said automatically selecting also comprises varying at least one additional parameter of said milling machine as a function of said available spindle power.

9. A machined object according to claim 8 and wherein said at least one additional parameter of said milling machine is at least one of feed speed and rpm.