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.

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 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, said tool path being an asymmetric spiral tool path including a plurality of sequential loops, mutually separated by different distances at different locations therealong, in each of which loops an engagement angle between said tool and said workpiece decreases from a maximum engagement angle to a minimum engagement angle at some locations along the loop and increases from a minimum engagement angle to a maximum engagement angle at other locations along the loop.

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 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, said tool path being an asymmetric spiral tool path including a plurality of sequential loops, mutually separated by different distances at different locations therealong, in each of which loops an engagement angle between said tool and said workpiece decreases from a maximum engagement angle to a minimum engagement angle at some locations along the loop and increases from a minimum engagement angle to a maximum engagement angle at other locations along the loop.

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 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, said tool path being an asymmetric spiral tool path including a plurality of sequential loops, mutually separated by different distances at different locations therealong, in each of which loops an engagement angle between said tool and said workpiece decreases from a maximum engagement angle to a minimum engagement angle at some locations along the loop and increases from a minimum engagement angle to a maximum engagement angle at other locations along the loop; 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.