THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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***Ex parte*** TOMOMITSU NIWA

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Appeal No. 95-4325
Application 08/006,957[1]

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HEARD: JULY 15, 1997

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Before THOMAS, HAIRSTON and FLEMING, ***Administrative Patent Judges***.

FLEMING, ***Administrative Patent Judge***.

***DECISION ON APPEAL***

This is a decision on appeal from the final rejection of claims 1 through 3 and 5 through 18. Claim 4 has been canceled. On September 2, 1994, Appellant filed an after final amendment canceling claim 15, adding new claim 19 and amending claims 6 and

[1] Application for patent filed January 21, 1993.

11. The Examiner in an advisory action, mailed September 14, 1994, stated that upon the filing an appeal, the proposed amendment, filed September 2, 1994, will be entered. We note that the amendment has been entered into the record and thereby, claims 1 through 3, 5 through 14 and 16 through 19 are properly before us for our consideration.

Appellant's invention relates to a tool specifying method and apparatus for a numerically controlled automatic programming system. Appellant discloses on page 1 of the specification that it is known in the art that a particular tool to be used may be specified in a program by entering a corresponding tool management number. To specify a tool in this known method, it is necessary for an operator to understand the relationships between the tools and corresponding tool management numbers in advance. On pages 2 through 8, Appellant discloses a prior art system as described in Figures 18-22 which solves these disadvantages by entering a tool into the system by a tool name, a nominal diameter, etc. as well as a tool management number. See Figure 20. When the tool specifying processing is initiated as illustrated in Figure 19, the operator may select the tool by either the tool name or tool management number. On pages 9 and 10, Appellant discloses another prior art system as illustrated

in Figure 23. This system provides a fully automatic tool selection mode in which the most appropriate tool is automatically selected with operator input as well as an operator determination mode in which the operator selects the tool. On page 10, Appellant discloses in the operator determination mode the operator must select the most appropriate tool from a list of tools in a tool group. The system automatically determines the tool group from tool determination data. Appellant discloses that the disadvantage of both of these prior art systems is where the number of tools from which a selection is to be made becomes large, the information is not presented in a way that will aid the operator in the selection of the most appropriate tool.

Appellant discloses on page 11 of the specification that this disadvantage is overcome by Appellant's invention by providing a tool determining method in which the tools are displayed on the screen in the order from the most appropriate tool to the least appropriate tool. This tool order is determined from a criterion table which provides set selection reference data.

Beginning on page 15 of the specification, Appellant discloses the tool specifying method as described in accordance with a flowchart shown in Figure 17. On pages 16 through 18 of

the specification, Appellant discloses the process of registering tool data. Figure 4 shows the tool data setting screen in which the operator sequentially enters the tool attribute data for each tool loaded on the machine. The data is then placed in the criterion table by the system. On page 19 of the specification, Appellant discloses that the operator sequentially enters various data indicating the selection reference data of the tool by the criterion data setting screen shown in Figure 5. One type of data entered by the operator specifies conditions to be satisfied by the tools. The conditions are listed on pages 20 and 21. Appellant discloses that a range follows each of these conditions. On pages 21 and 22 of the specification, Appellant discloses that the range defines a value ”a” which is the most appropriate value of the condition for the tool and a value “b” which is either the greatest or least permissible value of the condition for the tool. Once all the data is entered, Appellant discloses on pages 23 through 24 of the specification that when the operator depresses the “TOOL SELECT” menu key, the system provides a list of tools in which the tools appropriate for the machining are displayed on the CRT display 5 as shown in Figure 8 in the order in which they seem to be most appropriate.

Independent claim 1 is reproduced as follows:

1. A tool specifying method in an NC automatic programming system for specifying a tool by displaying tool data consisting of at least tool shapes for identifying tools, comprising the steps of:

1) setting and registering said tool data;

2) setting and registering tool criteria appropriate for a machining mode, said tool criteria being specified in a range by the most appropriate value and a predetermined value greater or smaller than said most appropriate value;

3) automatically arranging and displaying said tool data in accordance with said set criteria; and

4) selecting and specifying desired tool data from among said tool data displayed.

The references relied on by the Examiner are as follows:

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| Tanaka | 4,591,989 | May 27, 1986 |
| Shima et al (Shima) | 4,823,253 | Apr. 18, 1989 |
| Pilland et al. (Pilland) | 4,992,948 | Feb. 12, 1991 |

Claims 1, 5, 8 through 10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Pilland. Claims 2 and 3 stand rejected under 35 U.S.C. § 103 as being unpatentable over Pilland. Claims 11 through 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Pilland and Shima. The Examiner’s answer set forth the following new ground of rejection. Claims 6 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tanaka. Claim 19 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Pilland.

Rather than repeat the arguments of Appellant or the Examiner, we make reference to the briefs[2] and the answers[3] for the details thereof.

OPINION

After a careful review of the evidence before us, we do not agree with the Examiner that the claims 1, 5 through 10 and 19 are anticipated under 35 U.S.C. § 102(b) or claims 2, 3 and 11 through 18 are unpatentable under 35 U.S.C. § 103.

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[2] Appellant filed an appeal brief on January 13, 1995. We will reference this appeal brief as simply the brief. Appellant filed an appeal reply brief on June 28, 1995. We will reference this appeal reply brief as simply the reply brief. The Examiner responded to the reply brief with an Examiner's supplemental answer and thereby entered the reply brief into the record. Appellant filed an appeal supplemental reply brief on February 16, 1996. We will reference the appeal supplemental reply brief as simply the supplemental reply brief. The Examiner responded to the supplemental reply brief with a letter mailed May 10, 1996 stating that the supplemental reply brief has been entered and considered but no further response by the Examiner is deemed necessary.

[3] The Examiner responded to the brief with an Examiner's answer, dated April 28, 1995. We will refer to the Examiner's answer as simply the answer. The Examiner responded to the reply brief with supplemental Examiner's answer dated December 18, 1995. We will refer to the supplemental Examiner's answer as simply the supplemental answer. The Examiner responded to the supplemental reply brief with a letter dated May 10, 1996 so noting that the supplemental reply brief has been entered. The Examiner offered no other response.

It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim. ***See In re King***, 801 F.2d 1324, 1326, 231 USPQ 136, 138, (Fed. Cir. 1986) and ***Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co***., 730 F.2d 1452, 1458, 221 USPQ 481, 485, (Fed. Cir. 1984).

Appellants' claim 1 recites "setting and registering tool criteria appropriate for a machining mode, said ***tool criteria being specified in a range by the most appropriate value and a predetermined value greater or smaller than said most appropriate value***." Emphasis added.

Appellant argues on pages 13-16 of the brief that the Examiner erroneously construed Pilland as teaching a tool criteria as specified by a range by the most appropriate value and a predetermined value greater or smaller than said most appropriate value. Appellant further argues on pages 15 and 16 that the invention as defined in independent claims 1 and 8, allows a plurality of tool data, each representing a particular machining tool, to be arranged and displayed in an order of priority based on the tool criteria for each machining mode of a

machining program being entered as disclosed in the Appellants' specification, page 22, line 19 through page 24, line 12. Appellant further argues that the invention as defined in independent claims 1 and 8 determines the above-mentioned order based on the claimed range of the tool criteria where the range is specified as values between the most appropriate value and a predetermined value greater or smaller than said most appropriate value.

The Examiner argues in the answer on page 3 that Pilland teaches the tool criteria being specified in a range by the most appropriate value and a predetermined value greater or smaller than said most appropriate value in column 3, lines 26-30. Pilland states in column 3, line 26-30 the following:

> Weighting is effected in keeping with the criteria of interest, taking into account, in particular, the time required, quality, deviations from optimum machining values or the exceeding of absolute boundary values, which are also stored in the data base.

However, the Examiner has not made clear here his position as to what is the tool criteria and how this criteria is expressed in a range by the most appropriate value and a predetermined value greater or smaller than the most appropriate value.

On page 9 of the answer, the Examiner further clarifies his position by stating that Pilland shows that weights are based on

deviations from optimum machining values or the exceeding absolute boundary values and these deviations and boundary values constitute a range that meets the claimed language. Thus, it appears that the Examiner finds that the Pilland teaching of a data base of the deviations from optimum machining values or the exceeding of boundary values meet the claimed tool criteria.

Upon a closer review of Pilland, we find that Pilland teaches in column 1, lines 21-26, that for the machine tool to operate optimally, data concerning the workpiece, the tool, the machine itself, the cutting process to be used and general boundary conditions such as life, wear, etc. must be taken into consideration. In column 1, lines 50-63, Pilland teaches that the determination of control data to operate optimally the machine tool requires the determination of the selection of the optimum cutting edge geometry, the correct bit type, optimum cutting velocity, and the calculating of the feed for the tool slide, the cutting depth, the number of cuts, worming spindle capacity and the cutting edge contact time. In column 2, lines 5-22, Pilland teaches that their invention stores in a data base the various machine tools and machining operations. The data base for each machine tool contains data relative to the given machine tool, such as rpm range, field of drive, drive

characteristic (force, capacity, torque), drive gear steps, axle feed forces corresponding velocities, maximum cutting force, work-piece clamping force, speed limits, chuck conditions, coefficients of friction, tailstock, steady rest and static and dynamic stabilities. Pilland further teaches in column 2, lines 23-37, that additional information stored in the data base includes data concerning the tools insertable into a given machine tool such as individual types of tools, their stability and dimensions, loading capability, working range, grades of the bit and etc. In addition, Pilland teaches that additional information stored in the data base includes data concerning individual processing methods, such as data relating to general boundary conditions of the machining of workpieces such as tool wear, etc.

In column 3, lines 6-38, Pilland teaches the subroutines which make possible the selection, determination and computation of all these above mentioned variables for an optimal machining process. Pilland teaches that the operator is only required to enter data relative to the material of the work piece, the type of tool to be used and the surface quality desired of the article to be produced. The data processing unit determines by means of the subroutines the suitable cutting data including the weighting

of the individual cutting data. All possible pairings of cutting materials and bit shapes are formed by combination and then weighted. Pilland then states in column 3, lines 26-30, the passage that the Examiner is relying on, that the weighting is effected by taking into account the exceeding of absolute boundary values among other factors.

From a reading of Pilland as a whole, we fail to find that Pilland teaches "tool criteria being specified in a range by the most appropriate value and a predetermined value greater or smaller than said most appropriate value." We agree that Pilland teaches tool criteria such as their stability and dimensions, loading capability, working range, grades of the bit and etc. However, Pilland fails to teach that the tool criteria is expressed in a range of values from the most appropriate value to a predetermined value greater or smaller than said most appropriate value. In addition, we acknowledge that Pilland does teach absolute boundary values or deviations from optimum values for machining the workpieces which are tolerances for a finished workpiece. However, we will not speculate that such teaching would require an expression of a range as claimed without a further teaching shown in the record. We are dealing with an anticipation determination and not an obviousness determination.

Therefore, we find that Pilland does not teach a tool criteria expressed in a range of values from the most appropriate value to a predetermined value as claimed.

Therefore, we will not sustain the rejection of claims 1, 5, 8 through 10 and 19 under 35 U.S.C. § 102(b) as being anticipated by Pilland. In regard to the rejection of claims 2 and 3 under 35 U.S.C. § 103 as being unpatentable over Pilland and claims 11 through 18 under 35 U.S.C. § 103 as being unpatentable over Pilland and Shima, we note that the Examiner relies on the same reasoning as pointed out above. Therefore, we will not sustain these rejections as well for the same reason as above.

Claims 6 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tanaka. Appellant argues on page 2 of the reply brief that although Tanaka may teach a system that is capable of replacing certain displayed parameters of a tool that is to be used during a machining operation, nowhere does Tanaka teach a step of rearranging and displaying tool data as in the present invention. In particular, Appellant argues that claim 6 defines the method for specifying a tool comprising the step of setting and registering by an operator tool criteria which indicates which tool is appropriate for a particular machining mode, displaying the registered criteria data, changing and

registering the criteria and rearranging and displaying the tool data in accordance with said changed criteria. Appellant argues that the Examiner is mischaracterizing the Tanaka teaching on column 5, line 65 to column 6, line 3, as meeting Appellant's claimed limitation of rearranging and displaying the tool data in accordance with the changed criteria because Tanaka is only teaching that the tool parameters may be changed to compensate for wear. Appellant argues that as a result Tanaka does not rearrange and display tool data but only replaces the data in a field.

The Examiner argues on page 2 of the answer that since Tanaka shows the ability to correct data and since it is known that operators can make mistakes when entering data, Tanaka would have inherently performed the step of rearranging the data when an operator accidentally enters the wrong data at the wrong place. Appellant responds to the Examiner’s argument on page 2 of the supplemental reply brief by arguing that even if the Examiner is correct in how Tanaka would operate when correcting errors, the location, an indication which tool is appropriate for a particular machining mode, of the display data would not change on the basis of changed tool criteria as recited

in claim 6. Rather, the operator would be changing the displayed location of the data to merely correct the data.

We note that Appellant's claim 6 recites a "tool specifying method in an NC automatic programming system for specifying a tool by displaying tool data ... comprising the steps of: ... rearranging and displaying said tool data in accordance with said changed criteria." Tanaka teaches in column 5, lines 19-60, that the tools are to be displayed in their machining order as illustrated in Figure 8. Tanaka further teaches that, as shown in Figure 8, a list of various parameters of the selected tools are displayed. Tanaka teaches in column 5, lines 68, that the parameters are initially set to zero as shown in Figure 8 and the values for the parameters are entered by the operator key switches and these entered values are shown in Figure 10. In column 6, lines 1-3, Tanaka simply teaches that the values for the parameter may be changed by the operator when the values change due to wear, etc.

From these teachings, we fail to find any teaching that the parameters are rearranged and displayed in accordance to the changed values. The values are simply updated in the particular field and remain in that field as shown in Figure 8 and Figure

10. Therefore, we do not find that these teachings of Tanaka anticipated Appellant's claims 6 and 7.

In view of the foregoing, the decision of the Examiner rejecting claims 1 through 3, 5 through 14 and 16 through 19 is reversed.

***REVERSED***

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|---|---|
| JAMES D. THOMAS<br>Administrative Patent Judge | ) |
| KENNETH W. HAIRSTON<br>Administrative Patent Judge | ) BOARD OF PATENT<br>) APPEALS<br>) AND<br>) INTERFERENCES |
| MICHAEL R. FLEMING<br>Administrative Patent Judge | ) |

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Application 08/006,957

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