

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MATTHEW A. WORMLEY

Appeal 2007-3000
Application 09/799,195
Technology Center 2100

Decided: January 16, 2008

Before KENNETH W. HAIRSTON, JOSEPH F. RUGGIERO, and ROBERT E.
NAPPI, *Administrative Patent Judges*.

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DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 6(b) (2002) of the final rejection of claims 1 through 25. We reverse and enter a new rejection.

INVENTION

The invention is directed to a method of analyzing a layout of text to give a paragraph a visually pleasing appearance. See page 1 of Appellant's Specification. This is achieved by analyzing various layouts of text and assigning penalties for

Appellant contends, on pages 5 through 10 of the Brief, that the Examiner's rejection of claims 1 through 9, 11 through 19, and 21 under 35 U.S.C. § 103(a) is in error. Appellant asserts that the combination of Truelson and Peels does not teach or suggest a technique for calculating a hyphenation penalty that includes determining proximity of two non-consecutive lines that end in hyphens as recited in independent claims 1 and 11. (Br. 7.)

Appellant's arguments, on pages 10 through 20 of the Brief, present similar arguments directed to the Examiner's rejection of claims 10, 20, and 22 through 25 under 35 U.S.C. § 103(a).

The Examiner responds to these arguments stating that Truelson's system for recursively generating a score for each line (which includes a hyphenation penalty) teaches the claimed hyphenation penalty. (Br. 6.) Further, the Examiner states:

Truelson discloses "*determining proximity*". Truelson's formula contains a variable "*S.sub.(N-1)*" which is the score of the line in position of "*N-1*" relative to the line being analyzed. Determining the position of one line relative to another line is determining the proximity of the two lines. However, in Truelson the proximity is always the previous line (i.e. consecutive lines) for calculating a score of a line permutation. Peels is relied upon to teach the consideration of all lines in the paragraph (not just consecutive lines). Peels teaches the use of an *optimum fit* line-breaking algorithm, which considers all the lines of a paragraph (i.e. not just consecutive lines) when determining line hyphenation factors. Peels recites: "*The "optimum-fit" line-breaking algorithm considers a whole paragraph and distributes the word boxes along the lines by choosing the set of line break points that yield a minimum value for the sum of demerits over all lines. The algorithm keeps track of all formed lines for a paragraph. Each line break is the start for a next line to be formed. Hence, all possibilities of forming a paragraph are considered*" (page 359, eighth paragraph). (Answer 7.)

Thus, the issue before us with respect to the rejection under 35 U.S.C. § 103(a) is whether the Examiner erred in determining that the combination of Truelson and Peels teaches a technique for calculating a hyphenation penalty that includes determining proximity of two non-consecutive lines that end in hyphens.

FINDINGS OF FACT

1. The Peels article discusses a process of formatting text. (Introduction page 347.)
2. Peels discusses using a line-breaking algorithm where having hyphenated words at the end of two consecutive lines and the second to the last line of a paragraph are avoided. (Section 5.2.2(a), page 358.)
3. Peels teaches an algorithm to determine demerits for various configurations of text. The Demerits are calculated based upon a degree of “badness.” This calculation includes a penalty if the line ends in hyphenation. (Section 5.2.2(a) and (b), page 359.)
4. Peels teaches that these demerits are used to determine where to insert line breaks. They can be used in a “Notion of beauty” line break algorithm where the arrangement with the line break creates the fewest demerits. Alternatively, they can be used in an “optimal fit” algorithm which considers the whole paragraph, and the paragraph layout which yields the fewest demerits over all lines selected. (Section 5.2.2(a), page 359.)
5. Truelson teaches a text formatter for a word processor that formats several lines at one time. The formatter determines the minimum number of lines required for the text (maximum fit) and formats the text in lines to reduce hyphenation, letter spacing, or other undesirable formatting using the maximum fit. (Abstract.)

6. Truelson teaches that each permutation of the line is scored based upon a weighted score. The algorithm for the weighted score takes into account: the weighted score of the line upon which the current line was derived; the difference between the number of word segments in the current permutation and the number of words in the maximum fit; F_{space} , a function representing the deviation from the ideal word spacing; and G_{Hyphen} , a function representing the undesirable effects of hyphenation. (Col. 6, l. 60-col. 7, l. 11.)
7. The function G_{Hyphen} assigns a penalty if the line layout contains hyphenation. This penalty has different values depending upon how many letters in the word are left on the line. Truelson does not teach that the function G_{Hyphen} takes into account the proximity of a non-consecutive line with a hyphen. (Col. 7, ll. 33-41.)

ANALYSIS

Independent claim 1 recites “determine the proximity of at least two non-consecutive lines that end in hyphens; and calculate a hyphenation penalty value based on the determined proximity of the at least two non-consecutive lines that end in hyphens.” Independent claims 10, 11, 20, and 22 recite similar limitations. Thus, the scope of the independent claims includes determining the proximity of two non-consecutive lines that end in a hyphen and using the determination to generate a penalty.

Appellant’s arguments have persuaded us that the Examiner erred in determining that the combination of Truelson and Peels teaches a penalty based upon proximity of non-consecutive lines ending in a hyphenation as claimed. We find that both Truelson and Peels discuss hyphenation penalties. Facts 3 and 7.

Peels' penalties are based upon a line ending in a hyphen, based upon two consecutive lines ending in a hyphen, and based upon the second to last line of the paragraph ending in a hyphen. Fact 2. However, we find no disclosure in Peels that a penalty is generated based upon the proximity of two non-consecutive lines ending in a hyphenation. Truelson teaches that penalties are generated based upon a line ending in a hyphenation and that the penalty is increased based upon the number of letters left on the line. Fact 7. However, we find no teaching in Truelson that a penalty is generated based upon the proximity of two non-consecutive lines ending in a hyphenation. Further, we note that Truelson's system, which generates multiple permutations for the text layout and adds the penalties from each line of each permutation to find the permutation with the lowest score, will reduce the number of hyphenated lines. As such, Truelson's system may produce results similar to those obtained using Appellant's claimed method, however, the method of achieving these results is different as we find no disclosure in Truelson that a penalty is generated based upon the proximity of two non-consecutive lines ending in a hyphenation. Accordingly, Appellant has persuaded us of error in the Examiner's rejection of independent claims 1, 10, 11, 20, and 22, as the combination of the references do not teach all of the limitations of the independent claims. Thus, we will not sustain the Examiner's rejection of claims 1 through 25 under 35 U.S.C. § 103(a) as being unpatentable over Truelson in view of Peels.

NEW GROUNDS OF REJECTION PURSUANT TO 37 C.F.R. § 41.50(b.)

37 C.F.R. § 41.50(b) states:

(b) Should the Board have knowledge of any grounds not involved in the appeal for rejecting any pending claim, it may include in its opinion a statement to that effect with its reasons for so holding, which statement constitutes a new ground of rejection of the claim. A new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.

In light of our reviewing court's recent decision in *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007), we now reject claims 11 through 20 under 35 U.S.C. § 101.

Appellant's independent claim 11 and claim 20 are directed to a method of inhibiting hyphenation clustering in which proximity of at least two non-consecutive lines that end in hyphens is determined and the determination is used to generate a hyphenation penalty. Appellant's Specification describes the purpose of the hyphenation penalty as being used to produce a paragraph layout and "provide a system for evaluating the true overall visual appeal of a paragraph." (Specification 2.) We consider inhibiting hyphenation clustering as claimed to be directed to an abstract process, and that claims 11 and 20 recite no practical application. Accordingly, we consider claims 11 and 20 as not patentable under 35 U.S.C. § 101.

Our reviewing court has recently stated:

The prohibition against the patenting of abstract ideas has two distinct (though related) aspects. First, when an abstract concept has no claimed practical application, it is not patentable.... Second, the abstract concept may have a practical application. The Supreme Court has reviewed process patents reciting algorithms or abstract concepts in claims directed to industrial processes. In that context, the Supreme Court has held that a claim reciting an algorithm or abstract idea can state statutory subject matter

only if, as employed in the process, it is embodied in, operates on, transforms, or otherwise involves another class of statutory subject matter, i.e., a machine, manufacture, or composition of matter. 35 U.S.C. § 101.

In re Comiskey, 499 F.3d 1365, 1376 (Fed. Cir. 2007).

Even when a claim applies an abstraction, as part of a seemingly patentable process, it must be determined that the claim does not in reality seek patent protection for the abstraction. *Diamond v. Diehr*, 450 U.S. 175, 191 (1981). “Phenomena of nature, though just discovered, mental processes, abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.” *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972). One may not patent a process that comprises every “substantial practical application” of an abstract idea, because such a patent “in practical effect would be a patent on the [abstract idea] itself.” *Benson*, 409 U.S. at 71-72; *cf. Diamond v. Diehr*, 450 U.S. at 187, (stressing that the patent applicants in that case did “not seek to pre-empt the use of [an] equation,” but instead sought only to “foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.”) “To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.” *Diehr*, 450 U.S. at 192.

Independent claims 11 and 20 recite an algorithm which includes steps of identifying a line, modifying a pattern, determining a proximity of at least two non-consecutive lines that end in hyphens and assigning a penalty of the line. It is not important whether the algorithm is a "mathematical algorithm." However, independent claims 11 and 20 recite no practical application for the algorithm, nor do the claims recite that the algorithm employed in the process is embodied in, operates on, transforms, or otherwise involves another class of statutory subject

matter as noted in *Comiskey*. We do not consider evaluating lines of text to inhibit hyphenation clustering by generating penalties to be a practical application because, as claimed, it is a disembodied act which is not related to any medium on which the text is presented. Further, it is not related to any device which performs the evaluating¹. Thus, we consider the limitations of independent claims 11 and 20 to recite an algorithm which is not patentable subject matter under 35 U.S.C. § 101 as the limitations are not drawn to any practical application and do not recite operating on or involving any other statutory class of invention. Not every series of steps is a "process" under § 101. *Benson*, 409 U.S. at 64 ("The question is whether the method described and claimed is a 'process' within the meaning of the Patent Act.").

Dependent claims 2 through 9, and 21 recite limitations which further limit the steps of the algorithm. As such, they do not limit the algorithm to operating on or involving any other statutory class of invention. Further, these claims do not recite any practical application of the algorithm.

Independent claims 1, 10, and 22 recite similar limitations to claims 11 and 20, but further recite that the method steps are in the form of "[a] computer

¹ We note that it is not clear whether application of the "useful, concrete and tangible result" test of *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998) and *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999) is necessary to determine whether a claim is drawn to statutory subject matter. In *In re Comiskey*, the Federal Circuit appears to adopt the U.S. Patent and Trademark Office's position that *State St.* and *AT&T* are limited to transformation of data by a machine. *Comiskey*, 499 F.3d at 1377 n.14. In any case, we do not find that independent claims 11 or 20 recite a tangible result: the result in independent claims 11 and 20 is a series of lines with penalties assigned to them, the claims do not even recite a selection of a paragraph arrangement.

program product, tangibly stored on a computer-readable medium, for inhibiting hyphenation clustering, comprising instructions operable to cause programmable processors to. . . .” While the difference between claims 1, 10, and 22 appears to be an attempt to evade a rejection under 35 U.S.C. § 101 by nominally reciting a medium on which the instructions are recorded, we are constrained by the holding in *Lowry*, wherein a claim to functional descriptive material (a data structure capable of interacting with a computer) stored on a computer readable medium was held to be statutory. *In re Lowry*, 32 F.3d 1579, 1583-84 (Fed. Cir. 1994).

CONCLUSION

We reverse the Examiner’s rejections of claims 1 through 25. We enter a new rejection against claims 11 through 20. The decision of the Examiner is reversed.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

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(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

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REVERSED - 37 C.F.R. § 41.50(b)

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