

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MARILYN FORSTER

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Appeal 2008-0032  
Application 10/348,248  
Technology Center 2800

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Decided: May 29, 2008

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Before SCOTT R. BOALICK, JOHN A. JEFFERY, and MARC S. HOFF,  
*Administrative Patent Judges.*

JEFFERY, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-8 and 10. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## STATEMENT OF THE CASE

Appellant invented a music notation system that provides an integrated staff system that replaces the grand staff commonly used. Preferably, the music staff of the invention comprises a 20-line grid of horizontal lines and spaces, ten lines forming a treble clef staff portion and ten lines forming a bass clef staff portion. The ten lines of each staff are divided into staff subportions of four and six lines. Such a system reduces the need for ledger lines and is easy to read.<sup>1</sup> Claim 1 is illustrative:

1. A musical notation system comprising a musical staff for receiving notes indicating the pitch and duration of the music, the staff comprising a grid of 20 horizontal lines with horizontal spaces between each of the lines for placement of the notes on the lines or in the spaces to indicate the pitch of the note, 10 of the lines forming a treble clef staff portion and 10 of the lines forming a bass clef staff portion, the treble staff portion being located above the bass staff portion, each 10-line staff portion being divided into two staff subportions with one staff subportion having 4 lines and another staff subportion having 6 lines, the arrangement of notes on the 6-line subportion of the treble clef staff portion being identical to the arrangement of notes on the 6-line subportion of the bass clef staff portion.

Claims 1-8 and 10 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.<sup>2</sup>

Rather than repeat the arguments of Appellant or the Examiner, we refer to the Brief and the Answer for their respective details. In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make

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<sup>1</sup> See generally Spec. ¶¶ 0007-0013.

<sup>2</sup> Although the Examiner's rejection includes claim 9, this claim has been cancelled. See Claims App.; see also the claim listing accompanying the Amendment filed June 29, 2005.

in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

### OPINION

The Examiner indicates that the claimed invention constitutes printed matter and therefore is not statutory subject matter (Ans. 3-5). Regarding representative independent claim 1,<sup>3</sup> Appellant argues that music notation systems constitute statutory subject matter, and emphasizes that the Board held as such in *In re Malcolm*, 56 F.2d 876 (CCPA 1932).<sup>4</sup> Appellant notes that the Board in that case reversed the Examiner's rejection of an application for a music notation system that, according to the Examiner in that case, was printed matter and therefore non-statutory (Br. 4-5). Appellant adds that not only have scores of U.S. patents for music notation systems been issued since the *Malcolm* decision, an entire subclass in the U.S. Patent Classification System is devoted to such patents (Br. 5).

Appellant also emphasizes that the patentability of Appellant's music notation system is not based on the *content* of the music notated by Appellant's system, but rather the *structure* of elements arranged on a page or other substrate. According to Appellant, the recited music notation system comprises specific *structure* that is comparable to other types of

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<sup>3</sup> Appellant argues all appealed claims together as a group (Br. 4). Accordingly, we select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii).

<sup>4</sup> The Court of Customs and Patent Appeals (CCPA) is a predecessor court to the U.S. Court of Appeals for the Federal Circuit (CAFC). The CAFC has adopted the CCPA's decisions as binding precedent. *South Corp. v. United States*, 690 F.2d 1368, 1370 (Fed. Cir. 1982) (en banc).

notation or coding systems which have been consistently held to constitute patentable subject matter (Br. 6-9; emphasis added).

The issue before us, then, is whether the claimed musical notation system constitutes statutory subject matter under § 101. For the reasons that follow, we conclude that it does not.

*I. The Claimed Musical Notation System is an Unpatentable Abstract Idea*

Under § 101, there are four categories of subject matter that are eligible for patent protection: (1) processes; (2) machines; (3) manufactures; and (4) compositions of matter. 35 U.S.C. § 101. While the scope of patentable subject matter encompassed by § 101 is “extremely broad” and intended to “include anything under the sun that is made by man,” it is by no means unlimited. *In re Comiskey*, 499 F.3d 1365, 1375 (Fed. Cir. 2007) (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980)). For example, laws of nature, abstract ideas, and natural phenomena are excluded from patent protection. *Diamond v. Diehr*, 450 U.S. 175, 188 (1981).

It is the second exclusion noted above -- abstract ideas -- that is relevant to the appeal before us. As the U.S. Supreme Court has noted, “[a]n idea of itself is not patentable[]’ .... ‘A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.’” *Id.* at 185 (citations omitted). Additionally, our reviewing court recently articulated the following two distinct aspects of abstract ideas:

- First, when an abstract concept has no claimed practical application, it is not patentable....
- Second, the abstract concept may have a practical application.... In [the context of industrial

processes], 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.... Thus, a claim that involves both a mental process and one of the other categories of statutory subject matter (i.e., a machine, manufacture, or composition) may be patentable under § 101.

*Comiskey*, 499 F.3d at 1376-77.

The court in *Comiskey* further noted:

[Section 101] does not allow patents to be issued on particular business *systems*...that depend entirely on the use of mental processes. In other words, the patent statute does not allow patents on particular *systems* that depend for their operation on human intelligence alone.... Thus, it is established that the application of human intelligence to the solution of practical problems is not in and of itself patentable.

*Id.* at 1378-79 (emphasis added).

With these legal principles in mind, we turn to representative claim 1 on appeal before us. Claim 1 recites, in pertinent part, a musical notation system comprising a musical staff for receiving musical notes where the staff comprises a grid of 20 horizontal lines with spaces therebetween. Claim 1 further recites that the staff is divided into 10-line treble and bass clef portions respectively. The claim further calls for each of these portions to be further divided into two subportions having four and six lines

respectively, and for the recited staff portions and notes to be arranged in a particular manner.

Interpreting claim 1 as a whole,<sup>5</sup> we must determine whether the recited subject matter falls within one of the enumerated statutory categories of patentable subject matter under § 101. Clearly, the claim is not directed to a process or composition of matter; therefore, we must determine whether it falls within either remaining statutory category (i.e., a machine or a manufacture).

We acknowledge that claim 1 does not recite the content or expression of a particular musical composition,<sup>6</sup> but rather a generic musical notation system that is capable of rendering musical compositions in a particular arrangement. Nevertheless, we fail to see how this system imparts sufficient structure such that it places the claimed invention in either remaining statutory category (i.e., a machine or manufacture) to render the claimed invention eligible for patent protection under § 101.

Significantly, claim 1 not only fails to recite a substrate onto which the musical notation system is presented, the claim is completely devoid of any sort of physical manifestation of the musical notation system, let alone a structural implementation. That is, the claim is merely a disembodied

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<sup>5</sup> See *Diamond v. Diehr*, 450 U.S. 175, 188 (1981) (“In determining the eligibility of respondents' claimed process for patent protection under § 101, their claims must be considered as a whole.”).

<sup>6</sup> Such musical compositions are not patentable. See *In re Alappat*, 33 F.3d 1526, 1553 (Fed. Cir. 1994) (Archer, J., concurring in part). Rather, musical compositions are copyrightable subject matter. See, e.g., MPEP § 2106.01 (noting that protection for nonstatutory music is provided under copyright law).

abstract idea until it is manifested in some physical way so as to be limited to a practical application of the idea.

Absent such a physical manifestation, the claimed musical notation system could be manifested entirely mentally. That is, the notation system could depend on its operation solely via human intelligence (i.e., by a musician or composer merely *thinking* about a particular piece of music rendered via the claimed notation system). But as the court in *Comiskey* noted, such systems that depend entirely on human intelligence for their operation are simply not patentable under § 101. *See Comiskey*, 499 F.3d at 1378-79. *Cf. In re Bernhart*, 417 F.2d 1395, 1399 (CCPA 1969) (“[The ‘printed matter’] cases dealt with claims defining as the invention certain novel arrangements of printed lines or characters, useful and intelligible only to the human mind.”).

For the foregoing reasons, we conclude that representative claim 1 recites an abstract idea and is therefore unpatentable under § 101. Accordingly, we will sustain the Examiner’s rejection of that claim, and claims 2-8 and 10 which fall with claim 1.

## *II. The Claimed Musical Notation System is Unpatentable Descriptive Material*

We also find that claim 1 merely recites descriptive material per se that is likewise nonstatutory subject matter under § 101. Descriptive material can be characterized as either “functional” or “non-functional.” Manual of Patent Examining Procedure, § 2106.01, Rev. 6, Sept. 2007

(“MPEP”).<sup>7</sup> Reciting either type of descriptive material per se, however, is nonstatutory. *See In re Warmerdam*, 33 F.3d 1354, 1360-61 (Fed. Cir. 1994); *see also* MPEP § 2106.01 (discussing functional and non-functional descriptive material when claimed as descriptive material per se). Therefore, since the recited musical notation system of claim 1 constitutes descriptive material per se, it is nonstatutory under § 101.

While the MPEP discusses functional and non-functional descriptive material in the context of computer-related subject matter, the fundamental legal principles articulated in this discussion are by no means limited to computer-related inventions. Indeed, these principles are consistent with those articulated with respect to printed matter generally.

For example, in *In re Miller*, 418 F.2d 1392 (CCPA 1969), the court held that certain volumetric indicia printed on a measuring receptacle imparted a “new and unobvious functional relationship” between the receptacle, the volumetric indicia thereon, and a legend indicating a particular volumetric ratio. *Id.* at 1396. However, the court emphasized that “no attempt is here being made to patent printed matter as such. The fact that *printed matter by itself is not patentable subject matter, because non-statutory*, is no reason for ignoring it when the claim is directed to a

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<sup>7</sup> “Non-functional” descriptive material, such as music, literary works, and compilations or mere arrangements of data, lacks any functional interrelationship and therefore does not fall into any of the enumerated statutory categories. Manual of Patent Examining Procedure, § 2106.01, Rev. 6, Sept. 2007. “Functional” descriptive material, on the other hand, has been characterized in the computer context as consisting of data structures and programs that impart functionality when employed as a computer component. *Id.*

combination.” *Id.* (emphasis added). *See also In re Gulack*, 703 F.2d 1381, 1386 (Fed. Cir. 1983) (quoting *Miller*).

The clear import of this discussion is that the matter printed on the receptacle (i.e., the volumetric indicia) is *itself* non-functional and therefore nonstatutory. Only when this indicia is printed on the substrate (i.e., the receptacle) is the functionality realized. In this sense, the printed matter in *Miller*, standing alone, effectively constitutes non-functional descriptive material.

In the claimed invention, the musical notation system of claim 1 is likewise devoid of a substrate and stands alone. It therefore constitutes non-functional descriptive material and is nonstatutory under § 101. But even if the recited musical notation system constituted functional descriptive material, it too would be nonstatutory, as claim 1 merely recites the descriptive material per se.

For the foregoing additional reasons, we conclude that representative claim 1 recites descriptive material per se and is therefore unpatentable under § 101. Accordingly, we will sustain the Examiner’s rejection of that claim, and claims 2-8 and 10 which fall with claim 1.

*III. Even if a Substrate Were Recited or Interpreted as Being Required,  
Claim 1 Would Still Not Recite Patentable Subject Matter*

Even if a substrate were recited in, or interpreted as being required by, claim 1 on which the musical notation system was presented, the claim would still not recite patentable subject matter under § 101.

Regarding the *Malcolm* case cited by Appellant, Appellant is correct that the Board in *Malcolm* reversed the Examiner’s rejection based upon the

non-patentability of the subject matter directed to a particular music notation system. Significantly, however, the Board in that case found that “the courts had *indicated doubt* as to the patentability of printed matter, but had stopped short of holding it nonpatentable per se and had decided the issues of those cases simply upon nonpatentability over prior art.” *Malcolm*, 56 F.2d at 876 (emphasis added).

After reversing the Examiner’s rejection in *Malcolm*, the case was returned to the Examiner and prosecution reopened. The Examiner then rejected the claims over prior art that the Board subsequently affirmed. On appeal, the court in *Malcolm* noted that its decision was limited to the prior art rejection, and emphasized that “the broad question of whether printed musical notations are patentable” was not before the court. *Id.* at 877.

Over ten years later, however, the CCPA held that claims “directed to the art of writing sheet music comprising reproducing upon a paper sheet certain information as an aid to beginners in learning to play the piano” was not patentable subject matter. *In re Rice*, 132 F.2d 140, 141 (CCPA 1942). Unlike *Malcolm*, the court’s decision in *Rice* was based solely on whether the claimed invention constituted patentable subject matter; the court did not reach the Examiner’s rejection based on prior art.<sup>8</sup> *Id.*

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<sup>8</sup> Nevertheless, the court noted in passing in connection with the prior art reference cited by the Examiner (i.e., the Dickson patent (U.S. Patent 1,053,366)) that “...in view of the judicial decisions rendered since [the issuance of the Dickson patent in 1913], *we must assume that such a patent would not now be granted by the Patent Office.*” *Id.* (emphasis added).

The Dickson patent noted above is entitled “Music Representation” and the claims recite, among other things, a flexible sheet or sheets with multiple depictions of the fingering board of a musical instrument thereon. The

The claimed invention in *Rice* directed to “the art of writing sheet music” was ultimately held to not constitute patentable subject matter since the court “[saw] nothing in appellant’s alleged invention other than the arrangement of printed matter and other indicia upon a sheet of paper.” *Rice*, 132 F.2d at 141.

Turning to representative claim 1 before us, even if some sort of substrate (e.g., a piece of paper) were recited in or interpreted as being required by the claim, we consider the holding of *Rice* particularly apposite. That is, adding a substrate to claim 1 would, like the invention in *Rice*, recite nothing more than the mere arrangement of printed matter upon the substrate. That a substrate is not even recited in claim 1 only further reinforces our conclusion that the claimed invention is not a manufacture.<sup>9</sup> But even if it were a manufacture, and even if a substrate were recited in or interpreted as being required by claim 1, the claim nonetheless would recite nothing more than a mere substrate marked with the printed matter to convey a message.<sup>10</sup>

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claims further recite groups of notes of a composition respectively located in direct connection with the respective depictions of the fingering board. *See* Dickson, P. 4, ll. 59-91 (claims 1 and 2); *see also* Figs. 1-4.

<sup>9</sup> *See, e.g., Ex parte Glenn*, 155 USPQ 42, 43 (BPAI 1966) (“While a sheet of paper having characters in ordered relation imprinted thereon is a ‘manufacture’ within the general meaning of this term, a long line of decisions ... supports the position taken by the examiner such that an article is not a ‘new-manufacture’ within the meaning of 35 U.S.C. 101, when the sole difference is in the meaning ascribed to the characters imprinted thereon.”).

<sup>10</sup> *See id.* (“The use of characters and lines in arrangements, colors, and other relationships to convey a message under known and assigned meanings still remains a mere sheet of paper marked to convey a message by ‘printed

Appellant's arguments (Br. 8-9) alleging that the recited music notation system comprises specific structure are unavailing. First, to the extent that the claim recites a functional relationship between the elements of the notation system, such a functional relationship, without more, is simply not dispositive of the question of whether the invention passes muster under § 101. Simply put, claim 1 recites a mere arrangement of printed matter or descriptive material that is totally devoid of structure that would place the invention into a statutory category of patentable subject matter.

Second, we are not persuaded that *In re Jones*, 373 F.2d 1007 (CCPA 1967) supports Appellant's position (Br. 7-8) that the claimed musical notation system constitutes patentable subject matter. The invention in *Jones* was a disc in the form of a code member with an arrangement of multiple series of pattern areas for line readout of non-linear code members representative of displacements of the code member from a nominal position. *Id.* at 1012. The court noted the following with respect to the disc:

The disc is devised, made and used as a *component part of a machine* utilizing optics and electronics to perform functions....We think it is error to confuse the lines on a patent drawing, which may have the appearance of 'printed matter,' with *functional elements of a mechanism* which in use actuate other mechanisms or electrical circuits or devices intended to be illustrated by the drawing.

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matter.'") (internal quotation marks omitted); *see also* David L. Stewart, *Patenting of Software-Proposed Guidelines and the Magic Dividing Line That Disappeared*, 77 J. Pat. & Trademark Off. Soc'y 681, 684 (1995) (noting that music is a form of symbolic communications whose symbol set comprises a staff, note symbols, placement of the notes on the staff, etc.).

*Id.* at 1013 (emphasis added).

Clearly, the court in *Jones* considered the disc to be a part of a machine with a specific function and not printed matter in the non-statutory sense. The court did not characterize the pattern areas on the disc as indicia or printing, but rather *structure* notwithstanding the fact that they could be produced by a printing technique. *Id.* In this regard, the court noted that printed matter can produce *physical results* such as in optical instruments (e.g., printed lines diffracting light) and photo-electric cells (e.g., printed marks actuating the cell). *Id.* at 1013 n.2 (emphasis added).

But claim 1 of the present application is a far cry from such a structural implementation of printed matter. Not only is the subject matter of the claim not associated with a machine as in *Jones*, the claim merely arranges the elements on a substrate<sup>11</sup> to visually render musical compositions in a particular fashion. To the extent that such a rendering is functional (e.g., the musical elements depicted on a substrate are easier to see or read), it simply does not impart any *physical results* that would rise to the level of imparting structure to the claim as in *Jones*.

Furthermore, we find Appellant's arguments (Br. 8-9) distinguishing the claimed invention from the printed matter found unpatentable in *In re Sterling*, 70 F.2d 910 (CCPA 1934) unavailing. In that case, the court noted that claim 1 was limited solely to a sheet for a savings check and stub, and that "the mere arrangement of printed matter on a sheet or sheets of paper does not constitute patentable subject matter." *Id.* at 912. The court further noted the following:

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<sup>11</sup> Assuming, that is, that a substrate were to be recited or interpreted as being required by claim 1.

If the check and stub structure here involved presented some new and useful *physical form* with the printed matter adjusted to such form,...a different question would confront us....The general physical structure of appellant is admittedly old, and such modifications in the adjustment of printed matter thereto as he discloses are more obvious arrangement of the printing.

*Id.* at 912-13.

As in *Sterling*, claim 1 of the present application does not recite a new and useful physical form with the printed matter adjusted to such a form. Indeed, as we noted previously, a substrate (a structural element that could render the invention a “manufacture”) is not recited at all. But even if it were recited or interpreted to be present, the musical notation system printed on such a substrate would simply not present any new and useful physical form as required by *Sterling*. See *Ex parte Glenn*, 155 USPQ 42, 43 (BPAI 1966). Rather, it would simply present the printed matter on the substrate and not impart any structure to the claim.

To the extent that the printed matter on the check in claim 1 of *Sterling* constituted “content” in the form of printed column with transverse spaces, totalling spaces, instructions for transferring the totals of the column, and a signature line,<sup>12</sup> such content was nonetheless related to and had particular functions with respect to other “content” on the check. Additionally, such content would have had some aspect of utility, at least with respect to the drawer of the check.

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<sup>12</sup> See *Sterling*, 70 F.2d at 911 (text of claim 1).

Therefore, the fact that elements of content may have some functional aspect does not, without more, impart structure to the claim. Likewise, even assuming that the various elements of musical notation system of claim 1 of the present invention may be functionally interrelated as Appellant argues, the claim nonetheless merely recites printed elements on a substrate<sup>13</sup> without imparting any structure to the limitations. In that sense, Appellant's notation system is "content" analogous to the "content" found not to be statutory subject matter in *Sterling*.

For the foregoing additional reasons, we conclude that the musical notation system recited in representative claim 1 does not constitute statutory subject matter under § 101. Accordingly, we will sustain the Examiner's rejection of that claim, and claims 2-8 and 10 which fall with claim 1.

#### DECISION

We have sustained the Examiner's rejection with respect to all claims on appeal. Therefore, the Examiner's decision rejecting claims 1-8 and 10 is affirmed.

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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<sup>13</sup> Assuming, that is, that a substrate were to be recited or interpreted as being required by claim 1.

Appeal 2008-0032  
Application 10/348,248

AFFIRMED

gvw

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