UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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CHICAGO MERCANTILE EXCHANGE, INC.,
Petitioner,

v.

5th MARKET, INC.,
Patent Owner.
_____

Case CBM2015-00061
Patent 7,024,387 B1
_____

Before KALYAN K. DESHPANDE, MICHAEL R. ZECHER, and
GEORGIANNA W. BRADEN, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

DECISION
Institution of Covered Business Method Patent Review
35 U.S.C. 324(a) and 37 C.F.R. § 42.208

I.   INTRODUCTION

A. Background

Petitioner, Chicago Mercantile Exchange, Inc. ("CME"), filed a Petition requesting a review under the transitional program for covered business method patents of claims 1 and 2 of U.S. Patent No. 7,024,387 B1 ("the '387 patent," Ex. 1001). Paper 1 ("Pet."). Patent Owner, 5th Market, Inc. ("5th Market"), timely filed a Preliminary Response. Paper 8 ("Prelim. Resp.").

We have jurisdiction under 35 U.S.C. § 324(a),[1] which provides that a covered business method patent review may not be instituted unless the information presented in the Petition demonstrates "that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable." Taking into account the arguments presented in 5th Market's Preliminary Response, we determine that the information presented in the Petition establishes that claims 1 and 2 of the '387 patent are more likely than not unpatentable under 35 U.S.C. §§ 102(b) and 103(a). Pursuant to 35 U.S.C. § 324 and § 18(a) of the AIA, we hereby institute a covered business method patent review as to these claims.

B. Related Matters

The '387 patent is already the subject of the following two proceedings between CME and 5th Market: (1) an *inter partes*

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[1] *See* Section 18(a)(1) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284, 329 (2011) ("AIA"), which provides that the transitional program for covered business method patents will be regarded as a post-grant review under Chapter 32 of Title 35 of the United States Code, and will employ the standards and procedures of a post-grant review, subject to certain exceptions.

reexamination proceeding titled Reexamination Control No. 95/002,032 ("the '032 reexamination"), which is awaiting a Decision on Appeal at the Board; and (2) Case CBM2014-00114, which is awaiting a Final Decision at the Board. *See* Pet. 2; Paper 4, 2–3. In Case CBM2014-00114, CME filed a Petition challenging the patentability of claims 1, 2, 4, 6–8, and 10 of the '387 patent. *Chicago Mercantile Exch., Inc. v. 5th Mkt., Inc.*, Case CBM2014-00114, Paper 2 (PTAB Apr. 3, 2014). We, however, instituted a covered business method patent review only as to claims 4, 6–8, and 10 of the '387 patent as being unpatentable under 35 U.S.C. § 103(a), and declined to institute a review as to claims 1 and 2 because CME did not identify the corresponding structure for the means-plus-function limitations recited in independent claim 1, as required by 37 C.F.R. § 42.204(b)(3). Case CBM2014-00114, Paper 9 (PTAB Oct. 9, 2014) (Ex. 1005).

In addition to the Petition in this proceeding and the Petition filed in Case CBM2014-00114, CME filed a Petition challenging the patentability of claims 1–23 and 41–49 of U.S. Patent No. 6,418,419 ("the '419 patent"), which is a parent patent of the '387 patent. *Chicago Mercantile Exch., Inc. v. 5th Mkt., Inc.*, Case CBM2013-00027, Paper 3 (PTAB June 18, 2013) (Ex. 1008). We instituted a covered business method patent review as to claims 1–23 of the '419 patent as being indefinite under 35 U.S.C. §112 ¶ 2, as well as to claims 1–23 and 41–49 of the '419 patent as being unpatentable under § 103(a). Ex. 1009. In a Final Decision, we determined that claims 1–23 of the '419 patent are indefinite under §112 ¶ 2, and the claims 1–4, 6–23, and 41–49 of the '419 patent are unpatentable under § 103(a). Case CBM2013-00027, Paper 33 (PTAB Dec. 17, 2014) (Ex. 1019). We also denied 5th Market's Motion to Amend. *Id.* In a Decision on 5th Market's

Request for Rehearing, we granted-in-part 5th Market's Motion to Amend only as to proposed, substitute dependent claim 54. Case CBM2013-00027, Paper 38 (PTAB Mar. 23, 2015).

C. Standing

Section 18 of the AIA governs the transitional program for covered business method patent reviews. Section 18(a)(1)(B) of the AIA limits such reviews to persons, or their privies, that have been sued or charged with infringement of a covered business method patent. CME asserts that it has been sued for infringement of the '387 patent and the '419 patent in *Fifth Market, Inc. v. CME Group Inc.*, No. 08-0520 GMS (D. Del.). Pet. 6 (citing Ex. 1017). Based on the record before us, we agree that CME has standing to file its Petition.

D. The '387 Patent

The '387 patent, titled "Automated System for Conditional Order Transactions in Securities or Other Items in Commerce," issued April 4, 2006, from U.S. Patent Application No. 09/695,828, filed on October 26, 2000. Ex. 1001, at [54], [45], [21], [22]. The '387 patent is both a continuation-in-part of U.S. Patent Application No. 09/359,686, filed on July 23, 1999—now the '419 patent—and a continuation of application No. PCT/US00/19567, filed on July 24, 2000. *Id*. at [63].

The '387 patent generally relates to the conditional trading of securities, such as convertible bond "swaps," risk arbitrage, and combinations thereof in both listed and over-the-counter markets, via one or more electronic networks. Ex. 1001, 1:10–16. According to the '387 patent, there is no computer network that links participants involved in convertible securities in a transaction-oriented format. *Id*. at 1:33–34. Virtually every

transaction is through verbal private negotiations, i.e., almost every bid, offer, or trade is made verbally and is transmitted only to the participants involved. *Id*. at 1:34–37. The '387 patent discloses that this problem can be solved by creating an anonymous auction market, instead of a negotiated market, that displays prices to all participants and saves the trade information for later use. *Id*. at 1:37–42.

Figure 1 of the '387 patent, reproduced below, illustrates a conditional order transaction system. Ex. 1001, 4:36–38.
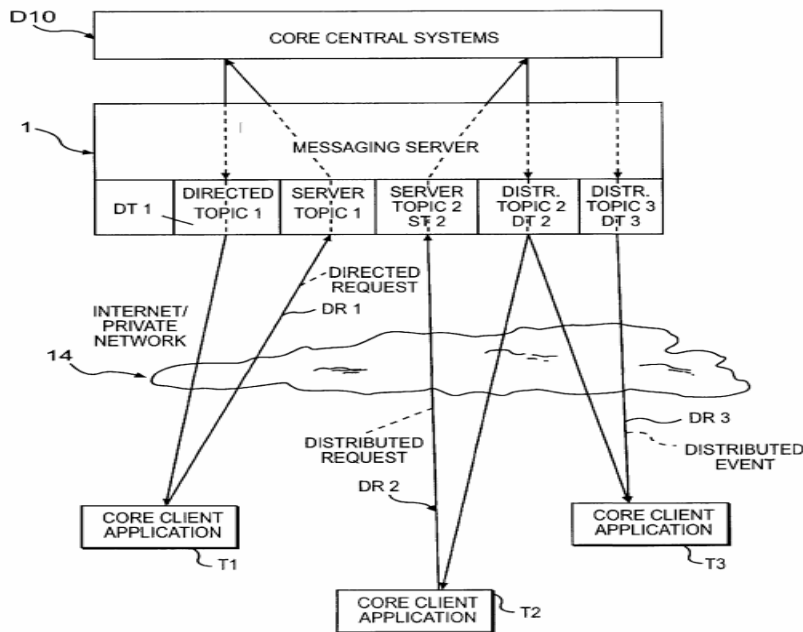

FIG. 1

As shown in Figure 1 of the '387 patent, there are three scenarios that use a conditional order routing exchange ("CORE"). *Id*. at 5:14–16. The first scenario includes CORE client program T1, which formats and transmits a client/subscriber/trade request with a directed response; the second scenario includes CORE client program T2, which formats and transmits a client request whose response is disseminated to various interested parties; and the third scenario involves CORE client program T3,

which receives data from some external source and, subsequently,

redistributes it to all interested parties. *Id*. at 5:23–59.

Figure 2 of the '387 patent, reproduced below, illustrates the

processing of a match order using the conditional order transaction system of
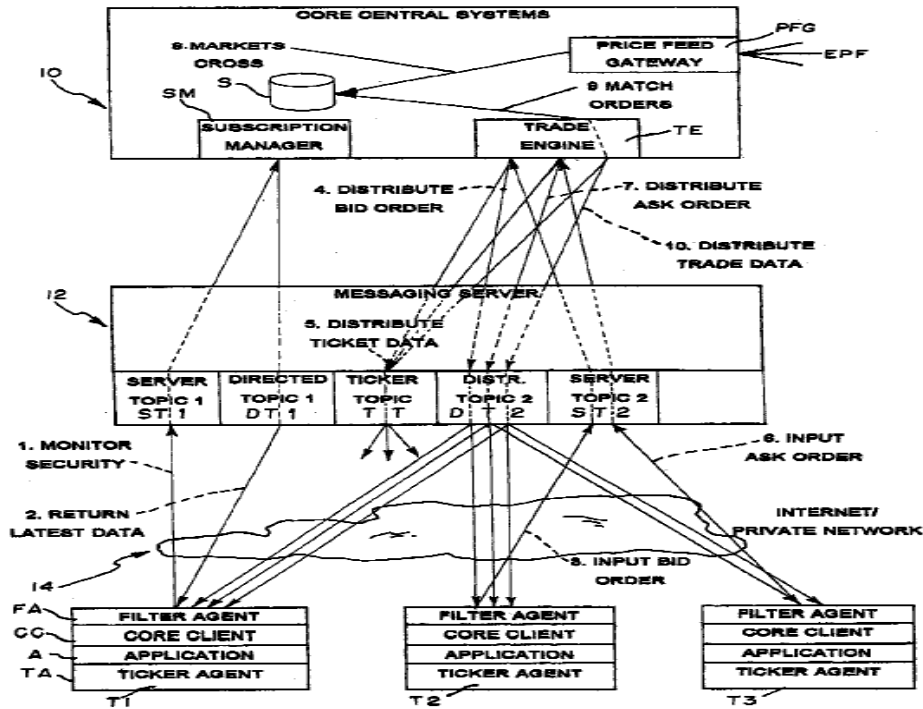
Figure 1. Ex. 1001, 4:42–43, 6:36–37.[2]

FIG. 2

[2] A comparison of Figure 3 of the '419 patent and Figure 2 of the '387 patent reveals that these Figures are identical. *Compare* Ex. 1010, Fig. 3, *with* Ex. 1001, Fig. 2. *Accord* Pet. 9 (confirming Figure 3 of the '419 patent corresponds to Figure 2 of the '387 patent). In addition, we note that, although the specification of the '387 patent indicates that Figure 3 illustrates the processing steps of a match order using the system of Figure 1 (*see, e.g.*, Ex. 1001, 4:42–43, 6:36–37), it is clear after reviewing both Figures 2 and 3 of the '387 patent that these processing steps are illustrated in Figure 2—not Figure 3. We, therefore, presume that the specification of the '387 patent mistakenly references Figure 3 when it intends to describe the ten processing steps for matching an order illustrated in Figure 2.

As shown in Figure 2 of the '387 patent, a first client requests to be
informed about events relating to a given security, a second client places a
bid for that security, and a third client places an ask for the same security.
Id. at 6:37–41. The processing steps for matching an order illustrated in
Figure 2 of the '387 patent are listed as follows: (1) Monitor Security; (2)
Return Latest Data; (3) Input Bid Order; (4) Distribute Bid Order; (5)
Distribute Ticker Data; (6) Input Ask Order; (7) Distribute Ask Order (also
Distribute Ticker Data); (8) External prices converge making orders cross;
(9) Crossed order are matched; and (10) Distribute Trade Details. *Id*. at
6:44–54.

E. Illustrative Claim

Claim 1 is the only independent claim challenged in this proceeding.
Claim 2 directly depends from independent claim 1. Independent claim 1 is
illustrative of the challenged claims and is reproduced below:

> 1.   A conditional order transaction network that
> matches or compares buy and sell orders for a plurality of items
> based upon conditions set forth within the order, including a
> price represented as an algorithm with constraints thereon, the
> conditional order transaction network comprising:
>
> a variable number of trader terminals for entering an
> order for an item in the form of an algorithm with constraints
> thereon that represent a willingness to transact, where the price
> is the dependent variable of the algorithm within the constraints
> and dynamically changing price of another item is an
> independent variable, the price as the dependent variable being
> continuously changeable responsive to changes in price of the
> independent variable, the algorithm representing a buy or sell
> order;
>
> controller computer means coupled to each of the trader
> terminals over a communications network and receiving as
> inputs, each algorithm with its corresponding constraints;

means for matching, in accordance with the constraints
and conditions, algorithmic buy orders with algorithmic sell
orders; one of the conditions being the requirement that two or
more securities are tradable contemporaneously as a contingent
trade of those respective securities, and

means for matching or comparing, in accordance with the
constraints and conditions, algorithmic buy/sell orders with
non-algorithmic sell/buy orders; one of the conditions being the
requirement that two or more securities are [tradable]
contemporaneously as a contingent trade of those respective
securities; and

wherein the order algorithm can be represented as a line
in two dimensional space with constraints having the price of
one security as one axis and the price of another security as its
other axis.

Ex. 1001, 27:14–48.

F. Covered Business Method Patent

Under § 18(a)(1)(E) of the AIA, we may institute a transitional review

proceeding only for a patent that is a covered business method patent. A

"covered business method patent" is a patent that "claims a method or

corresponding apparatus for performing data processing or other operations

used in the practice, administration, or management of a financial product or

service, except that the term does not include patents for technological

inventions." AIA § 18(d)(1); *see* 37 C.F.R. § 42.301(a). For purposes of

determining whether a patent is eligible for a covered business method

patent review, the focus is on the claims. *See* Transitional Program for

Covered Business Method Patents—Definitions of Covered Business

Method Patent and Technological Invention; Final Rule, 77 Fed. Reg.

48,734, 48,736 (Aug. 14, 2012). A patent need have only one claim directed

to a covered business method to be eligible for review. *See id.*

1. *Financial Product or Service*

In promulgating rules for covered business method patent review proceedings, the United States Patent and Trademark Office ("Office") considered the legislative intent and history behind the AIA's definition of a "covered business method patent." 77 Fed. Reg. at 48,735–36. The "legislative history explains that the definition of covered business method patent was drafted to encompass patents 'claiming activities that are financial in nature, incidental to a financial activity or complementary to a financial activity.'" *Id*. at 48,735 (citing 157 CONG. REC. S5432 (daily ed. Sept. 8, 2011) (statement of Sen. Schumer)). The legislative history indicates that "'financial product or service' should be interpreted broadly." *Id*.

CME contends that independent claim 1 of the '387 patent includes subject matter that is financial in nature because it recites both an "order transaction network that matches or compares buy and sell orders for a plurality of items," and "one of the conditions being the requirement that two or more securities are tradable contemporaneously as a contingent trade of those respective securities." Pet. 4 (quoting Ex. 1001, 27:14–16, 27:34–37). Based on these recitations in independent claim 1, CME asserts that the '387 patent is a covered business method patent eligible for review under § 18(d)(1) of the AIA. *Id*. at 4–5. 5th Market does not dispute CME's contention that independent claim 1 of the '387 patent recites subject matter that is financial in nature. On this record, we agree with CME that independent claim 1 satisfies the "financial product or service" component of the definition set forth in § 18(d)(1) of the AIA.

2. *Technological Invention*

The definition of a "covered business method patent" in §18(d)(1) of the AIA does not include patents for "technological inventions." When determining whether a patent is for a technological invention, we consider the following: "[(1)] whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and [(2)] solves a technical problem using a technical solution." 37 C.F.R. § 42.301(b).

CME contends that the claimed features that might be considered technical, such as the "network," "display device, "trader terminals," and "trader workstations," were old and well-known as of 1999. Pet. 5 (citing Ex. 1002 ¶ 71). CME also argues that, even if these claimed features could be characterized as technical, they are not novel or nonobvious, nor do they introduce a technical solution to a technical problem. *Id*. Instead, CME asserts that the invention of the '387 patent is directed to solving a financial problem—namely, a conditional order transaction network allowing traders to execute conditional trade orders. *Id*. 5th Market does not dispute CME's contentions regarding whether the challenged claims of the '387 patent are directed to a technological invention.

As we explained previously, the invention of the '387 patent addresses the problem associated with electronic trading platforms where there is no computer network linking participants involved in convertible securities in a transaction-oriented format. Ex. 1001, 1:33–34. The '387 patent discloses that this problem can be solved by creating an anonymous auction market, instead of a negotiated market, that displays prices to all participants and saves the trade information for later use. *Id*. at 1:37–42. In

our view, a conditional order transaction network that creates an anonymous auction market capable of displaying prices to all participants, and saving the trade information for later use, solves a financial problem rather than a technical problem. Moreover, at the time of the invention of the '387 patent, neither electronic trading platforms, nor computer networks, were unknown, unachievable, or incapable of being combined in the manner claimed. In fact, the '387 patent discloses that such electronic trading platforms were old and well-known at the time the application leading to the '387 patent was filed. *See, e.g.*, Ex. 1001, 1:43–49. We, therefore, conclude that the challenged claims of the '387 patent do not solve a technical problem using a technical solution.

We need only assess whether one of the factors set forth 37 C.F.R. § 42.301(b) is deficient to determine whether the '387 patent is not for a "technological invention."[3] As such, the current situation does not require us to assess whether a challenged claim of the '387 patent, as a whole, recites a technological feature that is novel and unobvious over the prior art. On this record, because we are persuaded by CME's explanation that the challenged claims of the '387 patent does not solve a technical problem using a technical solution, the '387 patent is a covered business method patent eligible for review.

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[3] Indeed the legislative history of the AIA supports this interpretation of the "technological invention" exception. *See, e.g.*, 157 Cong. Rec. S1364 (daily ed. Mar. 8, 2011) (Sen. Schumer stated the "'technological inventions' exception *only* excludes those patents whose novelty turns on a technological innovation over the prior art *and* are concerned with a technical problem which is solved with a technical solution . . . .") (emphases added).

G. Prior Art Relied Upon

CME relies upon the following prior art references:

Lupien   US 5,101,353   Mar. 31, 1992   (Ex. 1004)

Memorandum from the Commodity Futures Trading Commission on the New York Mercantile Exchange's ("NYMEX") Proposal to Implement the NYMEX ACCESS Trading System (Dec. 7, 1992) (on file with the Commodity Futures Trading Commission) (Ex. 1003, "CFTC").

Eric K. Clemons & Bruce W. Weber, *Restructuring Institutional Block Trading: An Overview of the Optimark System*, Working Paper Series S-97-21 (Oct. 1997) (on file with the N.Y. University, Leonard N. Stern School of Business) (Ex. 1018, "Clemons").

H. Asserted Grounds of Unpatentability

CME challenges claims 1 and 2 of the '387 patent based on the asserted grounds of unpatentability ("grounds") set forth in the table below.

Reference(s)	Basis	Challenged Claim(s)
	§ 101	1 and 2
	§ 112 ¶ 2	1 and 2
CFTC	§ 102(b)	1
CFTC and Lupien	§ 103(a)	2
Clemons and CFTC	§ 103(a)	1
Clemons, CFTC, and Lupien	§ 103(a)	2

II.   ANALYSIS

A. Claim Construction

As a first step in our analysis for determining whether to institute a covered business method patent review, we determine the meaning of the claims. In a covered business method patent review, we interpret claim terms in an unexpired patent according to the broadest reasonable interpretation in light of the specification of the patent in which it appears. 37 C.F.R. § 42.300(b); *cf. In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271,

1279–83 (Fed. Cir. 2015) (In considering the broadest reasonable interpretation standard for post-grant review proceedings, the Federal Circuit determined that "Congress implicitly adopted the broadest reasonable interpretation standard in enacting the AIA," and "the standard was properly adopted by PTO regulation.").

Independent claim 1 recites, in relevant part, "means for matching" and "means for matching or comparing." Ex. 1001, 27:33–44. As an initial matter, these are means-plus-function limitations because they each use the term "means for," the term "means for" is modified by functional language, and the term "means for" is not modified by sufficient structure recited in the claim to perform the recited functions. Consequently, these means-plus-function limitations require construction under 35 U.S.C. § 112 ¶ 6.[4]

CME contends that the specification of the '387 patent does not describe the structure corresponding to each function recited in independent claim 1. Pet. 15. In response, 5th Market does not dispute CME's contentions regarding whether the specification of the '387 patent sufficiently describes the structure corresponding to each recited function. *See generally* Prelim. Resp. 32–33. We address the means-plus-functions limitations recited in independent claim 1 in turn.

1. "means for matching" (claims 1 and 2)

At the outset, CME contends that the specification of the '387 patent discloses that the trade engine is a computer that performs the recited function of "matching." Pet. 16–17 (citing Ex. 1001, 7:13–14, 17:39–44).

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[4] Section 4(c) of the AIA re-designated 35 U.S.C. § 112 ¶ 6 as 35 U.S.C. § 112(f). Because the '387 patent has a filing date before September 16, 2012 (the effective date of AIA § 4(c)), we will refer to the pre-AIA version of § 112.

CME, however, asserts that the corresponding structure of a means-plus-function limitation must be more than simply a general purpose computer to avoid pure functional claiming. *Id*. at 17. CME argues that there is no disclosure in the specification of the '387 patent of any structure explaining how orders are matched. *Id*. CME further argues that, at best, the specification of the '387 patent discloses step (9) in Figure 2—namely, "Crossed orders are matched," but there is no disclosure as to what structure or algorithm corresponds to this recited step. *Id*.

Based on the lack of sufficient structure disclosed in the specification of the '387 patent, CME then argues that it must speculate as to how to construe the "means for matching" limitation. Pet. 17. For purposes of this proceeding, CME asserts that "means for matching" should be construed as hardware, software, or a combination of both. *Id*. at 17 (citing Ex. 1001, 7:13–14, 17:39–43; Ex. 1002 ¶¶ 61, 63).

When construing a means-plus-function limitation under § 112 ¶ 6, we first must identify the claimed function, and then we look to the specification to identify the corresponding structure that actually performs the claimed function. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1210 (Fed. Cir. 2003); *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1119 (Fed. Cir. 2002). As CME correctly indicates in its Petition, the corresponding structure of a means-plus-function limitation must be more than simply a general-purpose computer or microprocessor to avoid impermissible functional claiming. *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). That is, the specification must disclose "enough of an algorithm to provide the necessary structure under § 112 ¶ 6" or a disclosure that can be

expressed in any understandable terms, e.g., a mathematical formula, in prose, or as a flowchart. *Finisar Corp. v. The DirectTV Group*, 523 F.3d 1323, 1340 (Fed. Cir. 2008). If the specification fails to provide sufficient structure, the means-plus-function limitation is indefinite under § 112 ¶ 2. *Aristocrat*, 521 F.3d at 1333.

There is no dispute that we must identify the corresponding structure that performs the recited function of "matching." Figure 2 of the '387 patent illustrates the processing of a match order using the system of Figure 1. *See* Ex. 1001, 4:40–44, 6:36–37.[5] The system illustrated in Figure 1 of the '387 patent includes a server-side component or trade engine that performs the function of matching orders. *See id*. 7:13–14, 17:39–44. Although we agree with CME that the disclosed trade engine is tantamount to a general purpose computer, we disagree with CME that the specification does not include an algorithm expressed in understandable terms for matching orders.

Figure 2 of the '387 patent collectively illustrate the following processing steps for matching an order: (1) Monitor Security; (2) Return Latest Data; (3) Input Bid Order; (4) Distribute Bid Order; (5) Distribute Ticker Data; (6) Input Ask Order; (7) Distribute Ask Order (also Distribute

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[5] In Case CBM2013-00027 involving the '419 patent, another Board panel determined that the corresponding structure for performing the recited function of "matching" is "a computer programmed to perform the ten processing steps illustrated in Figure 3 of the '419 patent." Ex. 1019, 14; Ex. 1009, 15, 24. As we explained previously, it is clear after reviewing both Figures 2 and 3 of the '387 patent that the ten processing steps for matching an order are illustrated in Figure 2—not Figure 3. *Accord* Pet. 9 (confirming Figure 3 of the '419 patent corresponds to Figure 2 of the '387 patent). We, therefore, presume the specification of the '387 patent mistakenly references Figure 3 when it intends to describe the ten processing steps for matching an order illustrated in Figure 2.

Ticker Data); (8) External prices converge making orders cross; (9) Crossed orders are matched; and (10) Distribute Trade Detail. Ex. 1001, 6:41–54. In our view, these processing steps are expressed in understandable terms, e.g., in prose or as a flowchart, for performing the function of "matching." Therefore, for purposes of this decision, we identify the corresponding structure for performing the recited function of "matching" to be a computer programmed to perform the ten processing steps illustrated in Figure 2 of the '387 patent. *See Finisar*, 523 F.3d at 1340.

   2. *"means for matching or comparing" (claims 1 and 2)*

  CME reiterates its position that the specification of the '387 patent fails to disclose a structure—namely, a special purpose computer—that corresponds to the recited function of "matching." Pet. 18. CME also contends that there is no disclosure in the specification of the '387 patent of any structure for performing the recited function of "comparing." *Id*. at 19. CME argues that, at best, the specification of the '387 patent discloses an example of a "matrix logic for seven separate and distinct orders for the same security" that compares each buy and sell order, and compares the requirements for each trade. *Id*. (citing Ex. 1001, 12:59–60, 13:50–54). CME asserts that, because the specification of the '387 patent merely discloses the results to be obtained, it does not disclose how to achieve those results and, therefore, fails to disclose a sufficient structure for performing the recited function of "comparing." *See id*.

  Based on the lack of sufficient structure disclosed in the specification of the '387 patent, CME then argues that it must speculate as to how to construe the "means for matching or comparing" limitation. Pet. 19. For purposes of this proceeding, CME asserts that "means for matching or

comparing" should be construed as hardware, software, or a combination of both. *Id*. at 19–20 (citing Ex. 1001, 7:13–14, 17:39–43; Ex. 1002 ¶¶ 64, 67).

Given that "means for matching or comparing" includes alternative language, i.e., "or," we address "means for matching" and "means for comparing" separately. With respect to "means for matching," in our discussion above we identify the corresponding structure for performing the recited function of "matching"—namely, a computer programmed by the algorithm represented by the ten processing steps illustrated in Figure 2 of the '387 patent.

We respect to "means for comparing," we must identify the corresponding structure that performs the recited function of "comparing." Upon reviewing the specification of the '387 patent, we agree with CME that there is one example in the specification directed to the recited function of "comparing." When referring to "the matrix logic for seven separate and distinct orders for the same security" in Table 4, the specification of the '387 patent discloses that "[t]his method involves the comparison of each buy order against each sell order and compares the requirements for a trade with the requirements for each other trade to ascertain the events most likely to occur and thus the most likely trades to occur first." Ex. 1001, 13:50–54.

We agree with CME that this cited portion of the specification of the '387 patent, at best, describes comparing each buy and sell order, and comparing the requirements for each trade. Simply reciting the function of "comparing" in the specification, and saying nothing about how the trade engine or computer ensures that the function is performed, is not a sufficient disclosure for an algorithm, which, by definition, must contain a sequence of steps. *See Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1384

(Fed. Cir. 2009). Consequently, the general descriptions in the specification of comparing each buy and sell order, and comparing the requirements for each trade, do not amount to an algorithm expressed in understandable terms that transforms an otherwise general purpose computer into a special purpose computer programmed to perform the recited function of "comparing." *See Finisar*, 523 F.3d at 1340.

We, therefore, identify the corresponding structure for performing the recited function of "comparing" as nothing more than a general purpose computer. Accordingly, for purposes of this decision, we construe "means for comparing" as simply a computer programmed to compare data.

B. Indefiniteness Ground

CME contends that claims 1 and 2 are indefinite under § 112 ¶ 2 because the specification of the '387 patent fails to disclose a sufficient algorithm corresponding to the "means for matching" and "means for matching or comparing" limitations. Pet. 26–41. We are persuaded by CME's analysis and supporting evidence as to the "means for comparing" limitation, but we are not persuaded by CME's analysis and supporting evidence as to the "means for matching" limitation.

CME presents numerous arguments that purportedly explain why these means-plus-function limitations are indefinite under § 112 ¶ 2. *Id.* In response, 5th Market does not dispute CME's contentions that the specification of the '387 patent does not describe sufficient structure corresponding to each recited function. *See generally* Prelim. Resp. 32–33. We discuss each means-plus-function limitation in turn.

1. *"means for matching" (claims 1 and 2)*

CME contends that the specification of the '387 patent fails to disclose an algorithm for performing the recited function of "matching." Pet. 27–28. According to CME, Figure 2 of the '387 patent illustrates a block diagram showing the processing of an input order to the trading system, but fails to show any additional structure other than merely identifying a "black box" that apparently corresponds to step 9—"Matched Orders." *Id*. at 28 (citing Ex. 1001, 4:39–41, Fig. 2). CME argues that there is nothing in the specification of the '387 patent that explains how orders are matched to one another. *Id*. CME argues that, at best, the '387 patent simply restates the function of "matching" by disclosing that "[c]rossed orders are matched," and the trade engine is the component for "matching open orders." *Id*. at 31 (citing Ex. 1001, 6:53, 17:39–42, Fig. 2). CME asserts that simply stating the function of "matching," by itself, is not a sufficient disclosure for an algorithm. *Id*.

In addition, CME recognizes that, in Case CBM2013-00027 involving the '419 patent, another Board panel identified the "corresponding structure for performing the recited function of 'matching' [as] 'a computer programmed to perform the ten processing steps illustrated in Figure 3 of the '419 patent.'" Pet. 31 (citing Ex. 1019, 14; Ex. 1005, 15, 24). CME argues, however, that the ten processing steps illustrated in Figure 2 of the '387 patent, which, as we discussed previously, corresponds to the ten processing steps illustrated in Figure 3 of the '419 patent, do not amount to an algorithm for matching orders, but instead merely explain how orders are routed. *Id*. at 32 (citing Ex. 1001, 6:41–7:36). CME argues that, although step (9) of Figure 2—"Crossed orders are matched"—is mentioned in the specification

of the '387 patent, there is no description of what structure or algorithm corresponds thereto. *Id*. (citing Ex. 1001, 6:53). Instead, CME argues that the '387 patent merely states that "[a] server-side component charged with routing and matching orders [trade engine] receives the message and makes the proper changes to its active order lists." *Id*. (citing Ex. 1001, 6:26–29).

When construing the "means for matching" limitation above, we identify the corresponding structure for performing the recited function of "matching" to be a computer programmed to perform the ten processing steps illustrated in Figure 2 of the '387 patent. *See supra* Section II(A)(1). In other words, we conclude that the processing steps illustrated in Figure 2 of the '387 patent amount to a specific algorithm that transforms an otherwise general purpose computer into a special purpose computer programmed to perform the recited function of "matching." *See Finisar*, 523 F.3d at 1340.

We disagree with CME's argument that the ten processing steps illustrated in Figure 2 of the '387 patent do not amount to a sufficient algorithm for matching orders. CME's argument in this regard narrowly focuses on step (9) illustrated in Figure 2—"Crossed orders are matched." Viewing step (9) illustrated in Figure 2—"Crossed orders are matched"—in isolation ignores the nine other processing steps illustrated in Figure 2 that are instrumental in achieving the outcome of a matched order. Moreover, the specification of the '387 patent provides a sufficient link or association between the function of matching performed by the trade engine with the description of processing a match order in Figure 2, which, in our view, indicates that 5th Market has particularly pointed out and distinctly claimed the "means for matching" limitation. *See Med. Instr. & Diag. Corp.* 344

F.3d at 1211 ("The duty of a patentee to clearly link or associate structure with the claimed function is the quid pro quo for allowing the patentee to express the claim in terms of function under [§112 ¶ 6].") (citation omitted).

On this record, because the specification of the '387 patent discloses sufficient structure for performing the recited function of "matching," we are not persuaded that CME has demonstrated that the challenged claims reciting "means for matching" are more likely than not indefinite under § 112 ¶ 2.

2. *"means for matching or comparing"*

Given that "means for matching or comparing" recited in claims 1 and 2 includes alternative language, we address "means for matching" and "means for comparing" separately. With respect to "means for matching," we identify the corresponding structure for performing the recited function of "matching"—namely, a computer programmed by the algorithm represented by the ten processing steps illustrated in Figure 2 of the '387 patent. *See supra* Section II(A)(1). Consequently, for the same reasons discussed above, we are not persuaded that CME has demonstrated that the challenged claims reciting "means for matching" are more likely than not indefinite under § 112 ¶ 2.

With respect to the "means for comparing," CME contends that the specification of the '387 patent fails to disclose an algorithm for performing the recited function of "comparing." Pet. 36. CME argues that, although the specification of the '387 patent discloses that the trade engine performs the function of "matching," it does not disclose that the trade engine performs the function of "comparing." *Id.* (citing Ex. 1001, 7:13–14, 17:39–44). CME further contends that, even if the trade engine is capable of performing

the function of "comparing," the specification of the '387 patent does not provide a sufficient algorithm for performing this function. *Id*. at 36–37. CME argues that, outsides the claims and the "Summary of the Invention" section, the specification of the '387 patent only describes the function of "comparing" on one occasion. *Id*. at 37 (citing Ex. 1001, 13:49–53). CME argues, however, that this cited portion of the specification does not disclose a sufficient algorithm for performing this function. *Id*. at 37–38.

In addition, CME recognizes that, in Case CBM2013-00027, another Board panel determined that the specification of the '419 patent, which is the parent patent of the '387 patent, fails to disclose sufficient structure for performing the function of "comparing." Pet. 37 (citing Ex. 1019, 20–21; Ex. 1009, 26). CME asserts that, for essentially the same reasons discussed in Case CBM2013-00027, the portions of the specification that the '387 patent shares with the '419 patent fail to disclose sufficient structure for performing the function of "comparing." *Id*.

When construing the "means for comparing" limitation above, we identify the corresponding structure for performing the recited function of "comparing" as nothing more than a general purpose computer. *See supra* Section II(A)(2). In other words, we conclude that the general descriptions in the specification of the '387 patent regarding the comparison of each buy and sell order, and the comparison of the requirements for each trade, do not amount to an algorithm expressed in understandable terms that transforms an otherwise general purpose computer into a special purpose computer programmed to perform the recited function of "comparing." *See Finisar*, 523 F.3d at 1340; *Blackboard*, 574 F.3d at 1384.

In summary, because the specification of the '387 patent does not disclose sufficient structure for performing the recited function of "comparing," we are persuaded that CME has demonstrated that challenged claims reciting "means for comparing" are more likely than not indefinite under § 112 ¶ 2.

C. Anticipation by CFTC

CME contends that independent claim 1 is anticipated under § 102(b) by CFTC. Pet. 41–47. In particular, CME uses a claim chart to explain how CFTC describes the claimed subject matter recited in independent claim 1 (*id*. at 45–47), and relies upon the Declaration of Craig Pirrong, Ph.D. (Ex. 1002 ¶¶ 93–98) to support its positions. At this stage of the proceeding, we are persuaded by CME's explanations and supporting evidence.

We begin our analysis with the principles of law that generally apply to a ground based on anticipation, followed by a brief discussion of CFTC, and then we address CME's contentions with respect to independent claim 1.

1. Principles of Law

To establish anticipation under § 102(b), "all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim." *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). We analyze this asserted ground based on anticipation with the principles stated above in mind.

2. CFTC

CFTC generally relates to NYMEX proposed rules and the rule amendments necessary to implement NYMEX American Computerized Commodity Exchange System and Services ("NYMEX ACCESS"). Ex. 1003, 3.[6] NYMEX ACCESS is an electronic order matching system that may be used by NYMEX members, as well as customers trading through NYMEX members, to trade futures and options contracts after NYMEX's regular trading hours. *Id.* In addition to the trade execution function, NYMEX ACCESS provides trade reporting and quotation information for NYMEX ACCESS contracts traded via the system. *Id.* at 3–4.

CFTC discloses a NYMEX ACCESS trade matching host that accepts limit orders, i.e., orders to buy or sell a particular number of futures or option contracts in a given commodity and month at a specified price, and spread orders entered at a differential. Ex. 1003, 19. NYMEX ACCESS terminal operators enter orders into the NYMEX ACCESS system using a trader work station. *Id.* at 4, 9. The NYMEX ACCESS trade matching host is coupled to these trader work stations over a network and, therefore, is capable of receiving the orders entered at each station. *Id.* at 4. Orders cannot be entered into the NYMEX ACCESS system for a customer unless the customer provides the following information: (1) Commodity; (2) Contract Month; (3) Buy or Sell; (4) Account Number; (5) Quantity; (6) Limit Price; (7) Clearing Member; (8) Strike Price and Put or Call; and (9) any precondition for entry into the matching system. *Id.* at 20–21.

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[6] All references to the page numbers in CFTC are to the page numbers located in the top, middle of each page.

CFTC discloses at least one example where the price of one security is dependent on the price of another security being traded. For instance, the NYMEX ACCESS system may generate implied spread bids and offers by calculating spread differentials based on the current, best prices for each component in the order. Ex. 1003, 28. CFTC also may generate conditional bids and offers only if they better the best bids or offers currently in the market. *Id*. at 28–29. These conditional bids and offers would adjust as the underlying markets move. *Id*. at 29. If a conditional bid or offer was taken, the NYMEX ACCESS system immediately completes the transaction by buying or selling the number of contracts of securities in accordance with the conditions and constraints entered as part of the order. *Id*.

3. Claim 1

CME presents detailed claim charts and supporting evidence that explain how CFTC describes all the claimed features recited in independent claim 1. For instance, CME contends that CFTC's trader work stations, which are capable of accepting spread orders from a trader, describe "a variable number of trader terminals for entering an order for an item . . . ," as recited in independent claim 1. Pet. 45–46 (citing Ex. 1003, 4, 9, 19–21, 27–32). CFTC discloses that NYMEX ACCESS terminal operators enter orders, such as spread orders entered at a differential, into the NYMEX ACCESS system using a trader work station. Ex. 1003, 4, 9, 19.

CME argues that CFTC's trade matching host, which is coupled to the trader work stations over a communications network, describes a "controller computer means coupled to each of the trader terminals over a communications network . . . ," as recited in independent claim 1. Pet. 46 (citing Ex. 1003, 4, 9, 20–22, 40). CFTC discloses that the NYMEX

ACCESS trade matching host is coupled to the trader work stations over a
network and, therefore, is capable of receiving the orders entered at each
station. Ex. 1003, 4. CFTC discloses that an order entered at a trader work
station includes constraints, such as quantity, limit price, strike price and put
or call, and any precondition for entry into the NYMEX ACCESS system.
Id. at 20–21.

CME further argues that CFTC's spread trading functionality matches
different legs of a spread order and, therefore, describes the "means for
matching" and the "means for matching or comparing" limitations recited in
independent claim 1. Pet. 46–47 (citing Ex. 1003, 28–31). CFTC discloses
that the NYMEX ACCESS system may generate implied spread bids and
offers by calculating spread differentials based on the current, best prices for
each component in the order. Ex. 1003, 28. If a conditional bid or offer was
taken, e.g., compared and matched, the NYMEX ACCESS system
immediately completes the transaction by buying or selling the number of
contracts of securities in accordance with the conditions and constraints
entered as part of the order. *Id*. at 29.

Finally, CME argues that CFTC's order algorithms may be
represented as a line on a two dimensional graph and, therefore, describes
"the order algorithm can be represented as a line in two dimensional
space . . . ," as recited in independent claim 1. Pet. 43–44, 47 (citing
Ex. 1003, 29–30; Ex. 1002 ¶ 96). CME's expert witness, Dr. Pirrong,
testifies that the relationship between two securities, e.g., the two legs of a
spread order, are represented graphically as a line in two dimensions.
Ex. 1002 ¶ 96. As one example of how algorithmic spread orders may be
represented as a line in two dimensional space, Dr. Pirrong directs us to the

example in CFTC of the January/February crude spread. *Id*. (citing

Ex. 1003, 29–30).

At this juncture in the proceeding, 5th Market does not address

CME's contentions and supporting evidence regarding this asserted ground.

See generally Prelim. Resp. 33–39. Based on the record before us, CME has

demonstrated that it is more likely than not that independent claim 1 is

anticipated by CFTC.

D. *Obviousness Based on the Combination of CFTC and Lupien*

CME contends that dependent claim 2 is unpatentable under § 103(a)

over the combination of CFTC and Lupien. Pet. 47–54. In particular, CME

uses a claim chart to explain how the proffered combination teaches the

claimed subject matter recited in dependent claim 2 (*id*. at 52–54), and relies

upon the Declaration of Dr. Pirrong (Ex. 1002 ¶¶ 103–11) to support its

positions. At this stage of the proceeding, we are persuaded by CME's

explanations and supporting evidence.

We begin our analysis with the principles of law that generally apply

to a ground based on obviousness, followed by a brief discussion of Lupien,

and then we address CME's contentions with respect to dependent claim 2.

1. *Principles of Law*

A claim is unpatentable under § 103(a) if the differences between the

claimed subject matter and the prior art are such that the subject matter, as a

whole, would have been obvious at the time the invention was made to a

person having ordinary skill in the art to which said subject matter pertains.

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007). The question of

obviousness is resolved on the basis of underlying factual determinations,

including: (1) the scope and content of the prior art; (2) any differences

between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze this asserted ground based on obviousness with the principles identified above in mind.

2. Lupien

Lupien generally relates to an automated system for trading securities in financial markets that increases liquidity and depth in such markets by trading portions of normally dormant portfolios, including those with numerous and diverse securities. Ex. 1004, 1:6–11. Lupien discloses that traders using its system have the ability to view information pertaining to all pending orders, as well as information pertaining to their own executed and cancelled orders, ranked by various criteria in numerous display screen formats. *Id*. at 7:15–19, Figs. 2–6. The bottom portion of each display screen contains prompts that enable each prospective trader to change the way data is displayed or ranked, to move to other display screens, to alter orders, or to respond to the orders of other systems or market participants. *Id*. at 7:39–41.

For instance, Figure 2 of Lupien illustrates a display screen that allows a trader to view their orders ranked by size, nearness to execution, price move for a day, symbol, etc. *Id*. at 7:48–50. In addition, Figure 6 of Lupien illustrates information displayed on a screen relevant to a single order. *Id*. at 8:52–53. The bottom portion of the screen displays the best and next best bid and ask residing on the system, along with the best bids and offers represented by the other markets and exchanges as reported by the trader's securities information vendor. *Id*. at 8:57–61.

3. Claim 2

CME presents detailed claim charts and supporting evidence that explain how the collective teachings of CFTC and Lupien account for all the claimed features recited in dependent claim 2. Pet. 52–54. CME contends that, to the extent that CFTC does not disclose explicitly a display device for displaying selected parameters of buy and sell orders "in a prioritized sequence in a descending order of favorability across a display field, with the most favorable order at one distal end and the least favorable at the other distal end," it would have been obvious to one of ordinary skill in the art to provide a display with this capability based on the teachings of Lupien. *Id.* at 51. CME argues that Lupien discloses a variety of display screens, some of which allow prospective traders to change the way data is displayed and ranked, including ranking the best bids and offers. *Id.* (citing Ex. 1004, 7:15–19, 7:39–41, 8:57–61). According to CME, modifying CFTC's trader work station with these teachings in Lupien amounts to nothing more than the combination of familiar elements according to known methods that would yield predictable results. *Id.* (citing *KSR*, 550 U.S. at 416). Moreover, CME's expert witness, Dr. Pirrong, testifies that ranking orders based on favorability is a common way to show traders other resting orders that are in the system, and further enables the traders to make sense of the other orders and trading possibilities. *Id.* (citing Ex. 1002 ¶ 110).

At this juncture in the proceeding, 5th Market does not address CME's contentions and supporting evidence regarding this asserted ground. *See generally* Prelim. Resp. 33–39. Based on the record before us, CME has demonstrated that it is more likely than not that dependent claim 2 would have been obvious over the combination of CFTC and Lupien.

E. *Remaining Grounds Based on Obviousness*

CME also contends that: (1) independent claim 1 is unpatentable under § 103(a) over the combination of Clemons and CFTC; and (2) dependent claim 2 is unpatentable under § 103(a) over the combination of Clemons, CFTC, and Lupien. Pet. 54–65. We, however, have broad discretion to institute review as to some asserted grounds and not others. 37 C.F.R. § 42.208(a) ("the Board may authorize the review to proceed . . . on all or some of the grounds of unpatentability asserted for each claim"); *see also* 35 U.S.C. § 324(a) (authorizing institution of post-grant review under particular circumstances, but not requiring institution under any circumstances). This discretion is consistent with the requirement that the statutory provisions governing covered business method patent review proceedings takes into account "the efficient administration of the Office," and "the ability of the Office to timely complete [instituted] proceedings" (35 U.S.C. § 326(b)), as well as the regulatory provision that mandates these proceedings be "construed to secure the just, speedy, and inexpensive resolution of every proceeding" (37 C.F.R. § 42.1(b)). Accordingly, we exercise our discretion and do not institute a covered business method patent review as to the remaining grounds asserted by CME.

F. *§ 101 Ground*

CME contends that claims 1 and 2 of the '387 patent are directed to patent-ineligible subject matter under § 101. Pet. 20–26. In particular, CME argues that the challenged claims are directed to an abstract idea, and there are no other features recited in these claims that would transform the patent-ineligible concept to a patent-eligible application. *Id*. We are not persuaded by CME's explanations and supporting evidence. Consequently, we

determine that CME has not shown that it is more likely than not that claims 1 and 2 are directed to patent-ineligible subject matter under § 101.

We begin our analysis with the principles of law that generally apply to a ground based on § 101, and then we turn to the arguments presented by the parties.

1. Principles of Law

A patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. The Supreme Court has held that this statutory provision contains an important implicit exception: laws of nature, natural phenomena, and abstract ideas are not patentable. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) ("Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work."). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the practical application of these concepts may be deserving of patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293–94 (2012).

In *Alice*, the Supreme Court reaffirmed the framework set forth previously in *Mayo* "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to "determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Id.* If the claims are directed to a patent-ineligible concept, the second step in the analysis is to consider the

elements of the claims "individually and 'as an ordered combination'" to determine whether there are additional elements that "'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo*, 132 S. Ct. at 1298, 1297). In other words, the second step is to "search for an 'inventive concept'—i.e., an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Id.* (quoting *Mayo*, 132 S. Ct. at 1294) (brackets in original). The prohibition against patenting an abstract idea "cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding insignificant postsolution activity." *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (citation and internal quotation marks omitted).

2. Whether the Challenged Claims are Directed to an Abstract Idea

In the first step of our analysis, we determine whether the challenged claims are directed to a patent-ineligible concept, such as an abstract idea. *See Alice*, 134 S. Ct. at 2355. CME contends that the challenged claims are directed to the abstract idea of "matching algorithmic orders in a trading system where the orders include constraints and dynamically changing prices for multiple items." Pet. 21–22 (citing Ex. 1001, 27:14–48). CME argues that such an abstract idea is "both a 'fundamental economic practice' and a method of 'organizing human activity,' which are patent-ineligible abstract ideas beyond the scope of § 101." *Id.* at 22 (citing *Alice*, 134 S. Ct. at 2356; Ex. 1002 ¶ 69).

In response, 5th Market contends that CME does not explain adequately how the challenged claims, which include, among other things, "a transaction network" with "trader terminals," "controller computer

means," and "means for matching," are directed to an abstract idea. Prelim. Resp. 29. 5th Market argues that CME's characterization of the abstract idea underlying the claims in the '387 patent challenged in this proceeding is inconsistent with CME's characterization of the abstract idea underlying the claims in the '419 patent challenged in Case CBM2013-00027. *Id.* In particular, 5th Market argues that, in Case CBM2013-00027, CME asserted that the '419 patent was directed to the abstract idea of "determining a price using external data sources," whereas in this proceeding CME asserts that the '387 patent is directed to the abstract idea of "matching algorithmic orders in a trading system where the orders include constraints and dynamically changing prices for multiple items." *Id.* (citing Ex. 1008, 20). According to 5th Market, this purported inconsistency demonstrates CME's inability to articulate an abstract idea recited by the claims of the '387 patent challenged in this proceeding—a required element of the § 101 analysis under *Alice*. *Id.*

Based on our independent assessment of claims 1 and 2 of the '387 patent, we are persuaded that CME has demonstrated sufficiently that these claims are directed to a patent-ineligible abstract idea. The subject matter of the challenged claims as framed by CME—namely, "matching algorithmic orders in a trading system where the orders include constraints and dynamically changing prices for multiple items"—is not different fundamentally from the kinds of commonplace financial transactions that were the subjects of the recent decisions from the United States Supreme Court.

The Supreme Court held that the claims in *Alice* were drawn to the abstract idea of intermediated settlement and that "the mere recitation of a

generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *Alice*, 134 S. Ct. at 2352, 2358. *Alice* involved "a method of exchanging financial obligations between two parties using a third-party intermediary to mitigate settlement risk." *Id*. at 2356. Like the method of hedging risk in *Bilski*, 561 U.S. at 628, which the Supreme Court deemed "a method of organizing human activity," *Alice's* "concept of intermediated settlement" was held to be "a fundamental economic practice long prevalent in our system of commerce." *Alice*, 134 S. Ct. at 2356. Similarly, the Supreme Court found that "[t]he use of a third-party intermediary . . . is also a building block of the modern economy." *Id*. Thus, the Supreme Court held that "intermediated settlement . . . is an 'abstract idea' beyond the scope of § 101." *Id.* With respect to the first step of the patent-eligible analysis under the *Mayo* framework, the Supreme Court concluded that in *Alice* "there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement" in *Alice*, and that "[b]oth are squarely within the realm of 'abstract ideas' as we have used that term." *Alice*, 134 S. Ct. at 2357.

On this record, we determine that, similar to the concept of intermediated settlement in *Alice* and the concept of risk hedging in *Bilski*, the concept at issue here—namely, "matching algorithmic orders in a trading system where the orders include constraints and dynamically changing prices for multiple items"—is "a fundamental economic practice long prevalent in our system of commerce," and "squarely within the realm of 'abstract ideas.'" *Alice*, 134 S. Ct. at 2356–57; *Bilski*, 561 U.S. at 611. We do not agree with 5th Market's argument that CME's characterization of the abstract idea underlying the claims in the '387 patent challenged in this

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proceeding is inconsistent with CME's characterization of the abstract idea underlying the claims in the '419 patent challenged in Case CBM 2013-00027. 5th Market's position does not account for the fact that the scope of the claims of the '419 patent challenged in Case CBM2013-00027 is different from the scope of the claims of the '387 patent challenged in this proceeding. For instance, independent claim 1 of the '419 patent, which was challenged in Case CBM2013-00027 and ultimately found to be unpatentable, includes "at least one external price feed depicting prices of various securities and contracts from external multiple exchanges which may be used as an independent variable of the algorithm or an input to a constraint variable." Ex. 1010, Reexamination Certificate, 1:46–50. Independent claim 1 of the '387 patent does not include this limitation. *See* Ex. 1001, 27:14–48.

In view of the foregoing, we are persuaded that CME has demonstrated that the challenged claims of the '387 patent are directed to a patent-ineligible abstract idea.

3. Whether the Challenged Claims Include Limitations That Represent Inventive Concepts

Turning to the second step in the analysis, we look for additional elements that can "transform the nature of the claim" into a patent-eligible application of an abstract idea. That is, we determine whether the claims include an "inventive concept," i.e., an element or combination of elements sufficient to ensure that the patent in practice amounts to significantly more than a patent on the abstract idea, itself. *Alice*, 134 S. Ct. at 2357. The relevant inquiry here is whether "additional substantive limitations . . . narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself." *Accenture Global Servs., GmbH*

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v. Guidewire Software, Inc., 728 F.3d 1336, 1344–45 (Fed. Cir. 2013) (internal quotations and citation omitted). The Supreme Court in *Alice* cautioned that merely limiting the use of abstract idea "to a particular technological environment," or implementing the abstract idea on a "wholly generic computer," is not sufficient as an additional feature to provide "practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself." *Alice*, 134 S. Ct. at 2358 (brackets in original) (citation and internal quotation marks omitted).

CME contends that independent claim 1 merely includes "trader terminals" and "a communications network." Pet. 23 (citing Ex. 1001, 27:19, 29). CME also contends that dependent claim 2 requires that the "conditional order transact network" of independent claim 1 further includes "trader workstations," "a display device," "an input device," and "a computer" that includes "a comparator" and "a sorter." *Id*. at 23–24 (citing Ex. 1001, 27:49–28:1). CME argues that these features, however, do not impart meaningful limitations or add significantly more to the abstract idea of "matching algorithmic orders in a trading system where the orders include constraints and dynamically changing prices for multiple items." *Id*. at 24. CME argues that the challenged claims of the '387 patent require no more than generic computer hardware, e.g., "network," "display device," "trader terminals," and "trader workstations," that are "'well-understood, routine, conventional activit[ies] previously known to the industry.'" *Id*. at 24–25 (quoting *Mayo*, 132 S. Ct. 1294; citing Ex. 1002 ¶ 71).

In response, 5th Market contends that CME's analysis of the challenged claims under the second step of *Alice* completely ignores the "means for matching" limitation recited in independent claim 1 of the '387

patent. Prelim. Resp. 29–30. 5th Market argues that this oversight is telling, especially because the Board panel in Case CBM2013-00027 focused on the same "means for matching" limitation in the '419 patent when it declined to institute a cover business method patent review as to CME's asserted ground based on § 101. *Id*. at 30–31 (citing Ex. 1009, 37, 38, 40–41). CME argues that, by ignoring the "means for matching" limitation recited in independent claim 1 of the '387 patent, CME has not demonstrated sufficiently that it is more likely than not to prevail on its assertion that the challenged claims are patent-ineligible under § 101. *Id*. at 32.

We agree with 5th Market's position that CME does not address whether all the elements of the challenged claims—either considered individually or as an ordered combination—transform the nature of each challenged claim into a patent-eligible application of an abstract idea. In particular, we agree with 5th Market that CME does not address adequately the "means for matching" limitation recited in independent claim 1 of the '387 patent. The "means for matching" limitation recited in independent claim 1 is not capable of being performed by just any generic computer that performs generic computer functions. *See Alice*, 134 S. Ct. at 2359 (determining whether "each [limitation recited in the challenged claim] does no more than require a generic computer to perform generic computer functions"). As we discussed previously (*see supra* Section II(A)(1)), this means-plus-function limitation encompasses the processing steps illustrated in Figure 2 of the '387 patent that amount to a specific algorithm that transforms an otherwise general purpose computer into a special purpose computer programmed to perform the recited function of "matching." *See Finisar*, 523 F.3d at 1340. When, as here, a special purpose computer

constitutes the structure that performs the recited function of "matching," in practical terms it imparts a meaningful limitation or adds significantly more to the abstract idea, itself.

In view of the foregoing, we are not persuaded that CME has demonstrated that the challenged claims of the '387 patent lack limitations that represent an inventive concept.

4. Summary

Based on the record before us, we determine that CME has not shown that it is more likely than not that claims 1 and 2 are directed to patent-ineligible subject matter under § 101.

G. Other Considerations

5th Market contends that we should exercise our discretion under 35 U.S.C. § 325(d) to deny the Petition because the multiple, post-issuance challenges brought by CME against the '419 patent and the '387 patent demonstrates a pattern of delay tactics and piecemeal attacks. *See* Prelim. Resp. 3–25, 32–33. With respect to the ground based on § 112 ¶ 2 asserted in this proceeding, 5th Market argues that we should reject this ground because CME had the opportunity to assert the same ground in Case CBM2014-00114, yet it chose not to do so. *Id*. at 32–33. 5th Market further argues that CME provides no explanation as to why it could not have presented a ground based on § 112 ¶ 2 in its Petition filed in Case CBM2014-00114, much less why we should consider such a belated challenge given CME's purported understanding of the Board's view of the ground based on § 112 ¶ 2 asserted in the Case CBM2013-00027 against a certain subset of claims of the '419 patent. *Id*.

With respect to the grounds based on §§ 102(b) and 103(a) asserted in this proceeding, 5th Market argues that these grounds were the same grounds asserted against claims 1 and 2 of the '387 patent in Case CBM2014-00114. Prelim. Resp. 14–16. According to 5th Market, the only difference between these asserted grounds is the citations to the Declaration of Dr. Pirrong. *See id.* at 16–22. 5th Market further argues that the Petition in this proceeding is an improper attempt to cure the deficiencies that we identified with respect to claims 1 and 2 of the '387 patent in Case CBM2014-00114. *Id.* at 23–24 (citing Pet. 13–14). Lastly, 5th Market argues that CME does not provide a meaningful justification for filing a second petition challenging claims 1 and 2 of the '387 patent. *Id.* at 24–25.

We recognize that the Board has the authority under 35 U.S.C. § 325(d) to deny a petition when the same or substantially the same prior art or arguments previously were presented in another proceeding before the Office. The relevant portion of that statute is reproduced below:

> In determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, the Director *may* take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.

35 U.S.C. § 325(d) (emphasis added). The legislative history also recognizes that § 325(d) "*authorizes* the Director to reject any request . . . for post-grant or inter partes review on the basis that the same or substantially the same prior art or arguments previously were presented to the Office." 157 CONG. REC. S1376 (daily ed. Mar. 8, 2011) (statement of Sen. Kyl) (emphasis added).

We are not required to deny a petition merely because the same or substantially the same prior art or arguments previously were considered in

another proceeding before the Office. Rather, both the statutory provision and its legislative history include permissive language, e.g., "may," rather than mandatory language, e.g., "must" or "requires." Although we are cognizant of the burden imposed on 5th Market and this panel to rehear the same or substantially the same prior art or arguments that were considered in other proceedings before the Office, there are sufficient reasons in this proceeding to exercise our discretion to institute a covered business method patent review. We address CME's ground based on § 112 ¶ 2 and the grounds based on §§ 102(b) and 103(a) in turn.

With respect to CME's ground based on § 112 ¶ 2 asserted in this proceeding, we decline to foreclose review of claims 1 and 2 of the '387 patent based on this ground simply because CME had the opportunity to assert the same ground in Case CBM2014-00114, yet it chose not to do so. Put simply, CME did not assert a ground based on § 112 ¶ 2 in Case CBM2014-00114 and, therefore, CME's ground based on § 112 ¶ 2 asserted in this proceeding is entitled to consideration. Moreover, we decline to foreclose review on this ground simply because, in Case CBM2013-00027, CME presented the same ground against claims of the '419 patent that recite essentially the same means-plus-function limitations. As we noted previously, the '387 patent is a continuation-in-part of the '419 patent. Ex. 1001, at [63]. As such, the disclosures of the '419 patent and the '387 patent contain many similarities, yet differ in certain respects. *See, e.g.*, Ex. 1001, 7:40–17:48 (this cited disclosure is not included in the specification of the '419 patent). Evaluating the impact of the similarities and differences in these disclosures is pivotal in performing the proper analysis under § 112 ¶ 2 for means-plus-function limitations governed by

§ 112 ¶ 6—namely, the identification of the corresponding structure for each recited function.

With respect to CME's grounds based on §§ 102(b) and 103(a) asserted in this proceeding, we did not reach the merits of these grounds in Case CBM2014-00114. *See* Ex. 1005, 16–19, 21–23. Instead, we declined to institute a covered business method patent review as to these claims because CME did not identify the corresponding structure for the means-plus-function limitations recited in independent claim 1 of the '387 patent, as required by 37 C.F.R. § 42.204(b)(3). *Id.* In this proceeding, CME cured that deficiency by presenting new arguments and supporting evidence regarding the construction for the means-plus-function limitations recited in independent claim 1. *See* Pet. 16–20. Under these particular circumstances, we determine that CME's asserted grounds based on §§ 102(b) and 103(a) are entitled to consideration.

Taking into account the burden on 5th Market and the considerations set forth in 35 U.S.C. § 326(b), we decline to exercise our discretion under § 325(d) to foreclose review of the following grounds: (1) claims 1 and 2 as being indefinite under § 112 ¶ 2; (2) independent claim 1 as being anticipated under § 102(b) by CFTC; and (3) dependent claim 2 as being unpatentable under § 103(a) over the combination of CFTC and Lupien.

III. CONCLUSIONS

For the foregoing reasons, we determine that the information presented in the Petition establishes that claims 1 and 2 of the '387 patent are more likely than not unpatentable. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims.

IV.   ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 324 and § 18(a) of the AIA, a covered business method patent review is hereby instituted based on the following grounds:

A. claims 1 and 2 as being indefinite under § 112 ¶ 2;

B. claim 1 as being anticipated under § 102(b) by CFTC; and

C. claim 2 as being unpatentable under § 103(a) over the combination of CFTC and Lupien;

FURTHER ORDERED that no other grounds are authorized for this covered business method patent review other than those identified above; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 324(d) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial is commencing on the entry date of this decision.

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Patent 7,024,387 B1

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