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Paper 143
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

IBG LLC, INTERACTIVE BROKERS LLC,
TRADESTATION GROUP, INC., TRADESTATION SECURITIES, INC.,
TRADESTATION TECHNOLOGIES, INC., and IBFX, INC.,
Petitioner,

v.

TRADING TECHNOLOGIES INTERNATIONAL, INC.,
Patent Owner.

CBM 2015-00179
Patent 7,533,056 B2

Before SALLY C. MEDLEY, MEREDITH C. PETRAVICK, and JEREMY M. PLENZLER, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 328(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

IBG LLC, Interactive Brokers LLC, TradeStation Group, Inc., TradeStation Securities, Inc., TradeStation Technologies, Inc., and IBFX, Inc. (collectively, "Petitioner") filed a Petition requesting a covered business method patent review of claims 1–15 of U.S. Patent No. 7,533,056 B2 (Ex. 1001, "the '056 patent"). Paper 9 ("Pet.").[1] In response, Trading Technologies International, Inc. ("Patent Owner") filed a Patent Owner Preliminary Response. Paper 21 ("Prelim. Resp."). Upon consideration of the Petition and Preliminary Response, we instituted trial as to claims 1–15 of the '056 patent. Paper 23 ("Dec.").

Subsequent to institution, Patent Owner filed a Corrected Patent Owner Response (Paper 81 ("PO Resp.")) and Petitioner filed a Reply (Paper 110 ("Pet. Reply")). Petitioner filed a Motion to Exclude (Paper 116 ("Pet. Mot. to Exclude")) Exhibits 2300, 2301, 2304–2316, 2318–2324, 2326–2330, 2030, and 2032. Patent Owner filed an Opposition to the Motion to Exclude (Paper 117 ("PO Exclude Opp.")), and Petitioner filed a Reply (Paper 120 ("Pet. Exclude Reply")).

Patent Owner filed a Motion to Exclude (Paper 114 ("PO Mot. to Exclude")) Exhibits 1003, 1007, and portions of Exhibits 1059 and 1060. Petitioner filed an Opposition to the Motion to Exclude (Paper 118 ("Pet. Exclude Opp.")), and Patent Owner filed a Reply (Paper 121 ("PO Exclude Reply")).

[1] CQG, Inc. and CQGT, LLC, originally part of "Petitioner," settled with Patent Owner. The proceeding was terminated with respect to CQG, Inc. and CQGT, LLC. Paper 27.

An oral hearing was held on October 19, 2016, and a transcript of the hearing is included in the record (Paper 134 ("Tr.")).[2]

For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–15 of the '056 patent are unpatentable.

A. Related Matters

The '056 patent is involved in the following lawsuit: *TT v. BGC Partners, Inc.*, et al., No. 1:10-cv-00715 (N.D. Ill.). Pet. 3. In compliance with 37 C.F.R. § 42.302(a), Petitioner certifies that it has been sued for infringement of the '056 patent. *Id*. Patent Owner does not challenge Petitioner's certification that it has been sued for infringement of the '056 patent.

B. The '056 Patent

The Specification of the '056 patent describes a user interface for an electronic trading system that allows a remote trader to view trends for an item, which assists the trader to anticipate demand for an item. Ex. 1001, 2:8–26.

[2] After oral hearing, the Federal Circuit issued a decision, *Trading Technologies International, Inc.*, v. *CQG, INC.*, No. 2016-1616, 2017 WL 192716 (Fed. Cir. Jan. 18, 2017), determining that the subject matter claimed in two other tangentially related patents to the '056 patent are patent-eligible under § 101. Petitioner and Patent Owner, with authorization (Paper 137), each filed supplemental briefing addressing the impact of that decision on this proceeding. Paper 138 ("PO Br."); Paper 140 ("Pet. Br.").

C. Illustrative Claim

Claim 1 of the ’056 patent is the only independent claim:

1. A method of operation used by a computer for displaying transactional information and facilitating trading in a system where orders comprise a bid type or an offer type, the method comprising:

receiving bid and offer information for a product from an electronic exchange, the bid and offer information indicating a plurality of bid orders and a plurality of offer orders for the product;

displaying a plurality of bid indicators representing quantity associated with the plurality of bid orders, the plurality of bid indicators being displayed at locations corresponding to prices of the plurality of bid orders along a price axis;

displaying a plurality of offer indicators representing quantity associated with the plurality of offer orders, the plurality of offer indicators being displayed at locations corresponding to prices of the plurality of offer orders along the price axis;

receiving a user input indicating a default quantity to be used to determine a quantity for each of a plurality of orders to be placed by the user at one or more price levels;

receiving a user input indicating a desired price for an order to be placed by the user, the desired price being specified by selection of one of a plurality of locations corresponding to price levels along the price axis; and

sending the order for the default quantity at the desired price to the electronic exchange.

D. Grounds of Unpatentability

We instituted review of claims 1–15 on the following grounds:

References	Basis	Challenged Claims
n/a	§ 101	1–15
TSE[3], Togher[4], Schott[5], and Cooper[6]	§ 103	1–15
Silverman[7], Togher, Cooper, and Hogan[8]	§ 103	1–15

E. 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." Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284, 329 (2011) ("AIA") § 18(d)(1); *see* 37 C.F.R. § 42.302. To determine whether a patent is for a technological invention, we consider "whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and solves a technical problem using a technical solution." 37 C.F.R. § 42.301(b). For purposes of

[3] TOKYO STOCK EXCHANGE OPERATION SYSTEM DIVISION, FUTURES/OPTION PURCHASING SYSTEM TRADING TERMINAL OPERATION GUIDE (1998) (Ex. 1004) ("TSE").
[4] U.S. Patent No. 5,375,055, issued Dec. 20, 1994 (Ex. 1008) ("Togher").
[5] U.S. Patent No. 5,619,631, issued Apr. 8, 1997 (Ex. 1009) ("Schott").
[6] Alan Cooper, ABOUT FACE: THE ESSENTIALS OF USER INTERFACE DESIGN, First Edition (1995) (Ex. 1015) ("Cooper").
[7] U.S. Patent No. 5,136,501, issued Aug. 4, 1992 (Ex. 1010) ("Silverman").
[8] U.S. Patent No. 5,414,809, issued May 9, 1995 (Ex. 1011) ("Hogan").

determining whether a patent is eligible for a covered business method patent review, the focus is on the claims. A patent need have only one claim directed to a covered business method to be eligible for review.

1. Financial Product or Service

Petitioner argues that the '056 patent is a patent that claims a method for performing data processing or other operations used in the practice, administration, or management of a financial product or service. Pet. 4–5. In particular, Petitioner argues that claim 1 requires receiving bid and offer information of a product from an electronic exchange, displaying the bid and offer information to a user, receiving a user input indicating a default quantity and price for an order(s), and sending the order(s) to an electronic exchange. *Id.* Petitioner asserts that each of these activities are inherently financial in nature, such as receiving bid and offer information and displaying it to a trader. Displaying market information, Petitioner asserts, is a financial activity. *Id.* Receiving trader inputs for a trade and sending a trade order to an exchange, Petitioner asserts, involves trading on an exchange, a financial activity. *Id.* (citing Ex. 1044, 324–325).

Notwithstanding Patent Owner's arguments, which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that the '056 patent is directed to a method for performing data processing or other operations used in the practice, administration, or management of a financial service. Here, Petitioner asserts, and we agree, that claim 1 is directed to a method for displaying (e.g., "other operations") market information to a trader, which is a financial activity. Petitioner further

asserts, and we agree, that claim 1 also is directed to receiving trader inputs for a trade and sending a trade order to an exchange (e.g., trading on an exchange, which also lies under the "other operations" prong of CBM), which is a financial activity.

Patent Owner argues that neither the Petitioner nor this panel has proposed any definition of the CBM "data processing," and that the claims of the '056 patent are directed to a specific GUI tool, and not directed to data processing. PO Resp. 33. Patent Owner's argument is misplaced because the definition for 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 . . . ." *See, e.g.*, 37 C.F.R. § 42.301(a), (emphasis added). It is clear to us that Petitioner relies on the "other operations" part of the definition to make its case. This is exemplified in showing that it is the displaying and trading on an exchange elements of claim 1 that Petitioner relies on as showing "other operations" which are used in the practice of a financial service (trading on an exchange). Patent Owner does not rebut this showing.

In any event, we are not persuaded by Patent Owner's argument that the claims are directed to a specific GUI tool that displays information on a computer in a specified manner, but not concerned with processing the information that is displayed. PO Resp. 33–34 (citing Ex. 2168 ¶¶ 25–28). Claim 1 is directed to "[a] method of operation used by a computer for displaying transactional information and facilitating trading in a system." Patent Owner has not explained why a method of operation used by a

computer does not include data processing. Rather, the argument, and the testimony to which we are directed (*e.g.*, Ex. 2168 ¶¶ 25–28) are not commensurate in scope with the claims. Indeed, neither Patent Owner nor Eric Gould-Bear account for or discuss the specific claim language. For all of these reasons, we are not persuaded by Patent Owner's arguments. We determine that Petitioner has shown sufficiently that claim 1 claims a method for performing data processing or other operations used in the practice, administration, or management of a financial product or service.

2. Exclusion for Technological Inventions

As indicated above, even if a patent includes claims that would otherwise be eligible for treatment as a covered business method, review of the patent is precluded if the claims cover only "technological invention[s]," as defined by 37 C.F.R. § 42.301(b). Petitioner asserts that the '056 patent claims fail to recite any technological feature that is novel and unobvious over the prior art, and do not solve a technical problem with a technical solution. Pet. 5–9. In particular, Petitioner argues that the claims recite trading software that is implemented using conventional computer hardware, servers, and networks, directing attention to a description in the '056 patent that generically refers to "personal computers, terminals as part of a network, or any other computing device" and no specific hardware to carry out the invention. *Id.* at 6–7 (citing Ex. 1001, 4:34–36). Petitioner also argues that electronic trading was well known as of the filing date. *Id.* (citing Ex. 1006, 1).

Notwithstanding Patent Owner's arguments, which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that the claimed subject matter as a whole does not recite a technological feature that is novel and unobvious over the prior art. We agree with Petitioner that claim 1 is directed to well-understood, routine, and conventional steps of receiving market information and displaying it graphically to a trader, who uses the information to facilitate trading a commodity. *Id.*

For example, the "BACKGROUND OF THE INVENTION" section of the '056 patent explains that it was well known for an exchange to record all transactions for a particular item and to replay or post to the individual traders outstanding bids with the highest values and outstanding offers with the lowest value, along with a quantity specified for each order, to facilitate trading a commodity. Ex. 1001, 1:37–41. There is no indication in the '056 patent that the inventors invented gathering market information, displaying it to a trader, and using the information to facilitate trading a commodity. The use of a computer to perform these functions also was known in the art at the time of the invention, and the '056 patent does not claim any improvement of a computing device.

Patent Owner argues that the '056 patent is for a technological invention because the claims, previously allowed by the Office, are directed to a novel and nonobvious GUI tool. PO Resp. 29–30. Patent Owner argues that it is irrelevant that the claimed invention can be implemented on a conventional computer and that use of known technologies does not render claims non-technical. *Id.* at 29–30, 31–32. Rather the inquiry, Patent Owner argues, relates to the claimed software solution (e.g., an improved GUI tool),

which here is "technology that improves, even transforms, the computer so it performs functions it previously could not." *Id.* at 29–30. Patent Owner argues that Petitioner ignores the claimed GUI improvement. *Id.*

We disagree with Patent Owner that Petitioner ignored the claimed GUI improvement. Petitioner need not have addressed what is not present in the claims. As explained above, claim 1 is directed to gathering market information, displaying it to a trader, and the trader using the information to facilitate trading a commodity, features that were well known at the time of the invention. Moreover, there is no specific computer, program, or processing described in the '056 patent beyond what was known in the art at the time of the invention. Conversely, Patent Owner does not explain how broad claim 1 recites a GUI improvement. Our reviewing court has held that "the presence of a general purpose computer to facilitate operations through uninventive steps" does not render a claim a technological invention within the meaning of the statute. *See Versata dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1327 (Fed. Cir. 2015); *SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1315 (Fed. Cir. 2015). So it is here.

Petitioner also argues that the claimed subject matter does not solve a technical problem using a technical solution, because the problem is a financial one and the solution is to rearrange available market data on a display. Pet. 8–9. Notwithstanding Patent Owner's arguments, which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that the problem noted in the Specification of the '056 patent is not a technical one and no technical solution is used. The '056 patent Specification highlights the problem and importance of informing a trader of

certain stock market events so that the trader may use such information to facilitate trading a commodity. Ex. 1001, 2:19–26. However, informing a trader of certain stock market trends or events is more of a financial problem than a technical problem to which there is not a technical solution.

Patent Owner argues that the problem solved was with existing computer-trader interfaces, which is a technical problem. PO Resp. 31. Patent Owner argues that the claims recite a new GUI design addressing the problem with the old GUI design and that the claimed GUI improvement necessarily claims a technical solution to a technological problem. *Id.* We are not persuaded by Patent Owner's arguments that the claims are directed to solving a technical problem using a technical solution because Patent Owner's arguments are not commensurate in scope to the breadth of the claims.

For all of the foregoing reasons, the subject matter of at least claim 1 is not a "technological invention" under 37 C.F.R. § 42.301(b), and the '056 patent is eligible for a covered business method patent review.

II. ANALYSIS

A. Claim Construction

In a covered business method patent review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.300(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142–46 (2016). Under the broadest reasonable interpretation, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary

skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Only terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner proposes constructions for "(offer and bid) indicators representing quantity" and "indicators, icons, and tokens." Pet. 15–16, 18–20. In our Decision to Institute, we determined that Petitioner's proposed interpretations for these terms were consistent with the broadest reasonable construction, and, therefore, adopted Petitioner's proposed interpretations. Dec. 11. Neither party has indicated that our interpretations were improper and we do not perceive any reason or evidence that now compels any deviation from our initial determinations. Accordingly, the following constructions apply to this Decision:

Claim Term	**Construction**
(offer and bid) indicators representing quantity	includes alphanumeric and graphical indicators
indicators, icons, and tokens	a symbol such as an alphanumeric character or a graphic representation of an item

For purposes of this decision, we find it necessary to construe "price axis" (claim 1) and "order icon indicating the user's order" (claim 5).

Price Axis

Claim 1 recites a price axis in several instances. For example, claim 1 recites bid and offer indicators being displayed along a price axis. Ex. 1001, 14:1–10. Petitioner proposes that "price axis" be interpreted to mean "a reference line for plotting prices, including labeled, unlabeled, visible and invisible reference lines." Pet. 14–15. Patent Owner does not disagree with Petitioner's proposed interpretation. Rather, Patent Owner argues that Petitioner's proposed interpretation requires clarification "that a price axis cannot be a mere ordered list of prices that omits prices when there are no orders at that price." PO Resp. 5.[9]

Patent Owner urges a "clarification" to Petitioner's proposed interpretation that would require a price axis to include intervening price levels even when there are no bids/asks at those price levels. PO Resp. 4–7. This clarification, Patent Owner argues, is supported by the Specification of the '056 patent and the prosecution history. *Id.* For the following reasons, we are not persuaded that Patent Owner's proposed "clarification" to Petitioner's proposed interpretation results in the broadest reasonable interpretation of the term "price axis."

We begin with the words of claim 1. Claim 1 recites a price axis, but does not otherwise further expand on what constitutes a price axis. At the

[9] In our Decision to Institute, and upon taking into consideration the parties' arguments and supporting evidence, we interpreted "price axis" to mean "a reference line for plotting prices, including labeled, unlabeled, visible and invisible reference lines." Dec. 11. Petitioner agrees with that interpretation, while Patent Owner seeks to clarify the interpretation. Pet. Reply 11–12; PO Resp. 4–7.

outset, it appears to us that Patent Owner does not dispute that a price axis is a reference line for plotting prices, including labeled, unlabeled, visible and invisible reference lines. PO Resp. 7, n.1. We agree with Petitioner and Patent Owner that the broadest reasonable interpretation of "price axis" is a reference line for plotting prices, including labeled, unlabeled, visible and invisible reference lines for the reasons discussed in the Petition and supported by record evidence. Pet. 14–15; Ex. 1032 ¶ 71; Ex. 1016, 123–137. Patent Owner, however, would additionally add that a list of prices that do not contain gaps in between prices is not a price axis. *Id.* at 5. In support of its contentions, Patent Owner argues that the vertical axis (the "value axis") seen in Figures 3A, 3B, 3C, and 4 of the '056 patent describes that when there are no orders at a particular value or price, the value or price level remains displayed. *Id.* at 5–6 (citing Ex. 2169 ¶¶ 37–43).

We do not agree with Patent Owner that the term "price axis" requires reading into the claim the additional "clarification" that a list of prices that do not contain gaps in between prices is not a price axis. There is nothing in the claim language itself that describes gaps or how data is arranged along the price axis or what contains a price axis. The passages and figures of the '056 patent that Patent Owner (and Mr. Thomas) directs attention to are examples or embodiments of what is claimed, and do not indicate that Patent Owner disclaimed or limited price axis to consist of a list of prices that contains gaps in between prices. Moreover, Mr. Thomas' illustration of what constitutes a price axis is conclusory and not supported by record evidence. Ex. 2169 ¶¶ 41–42. He has not directed attention to any evidence in support of his testimony as to what does and does not constitute a price axis as illustrated in

paragraph 41 of his declaration. As pointed out by Petitioner, an axis may be represented by scale breaks or logarithmic scales, and thus, need not retain an order of gaps as Patent Owner and Mr. Thomas contend. Pet. Reply 11–12; Ex. 1058, 103–109.

We also have considered Patent Owner's arguments and evidence that remarks made by the then applicant during prosecution of the application that matured into the '056 patent amount to an express and clear disclaimer of the meaning for price axis. PO Resp. 6–7 (citing Ex. 1002, 178–179; Ex. 2169 ¶ 39). We are not persuaded by such arguments because the comments made during prosecution have not been shown to amount to a disclaimer of having a price axis without gaps in between prices. For example, Patent Owner directs attention to page 178 of Exhibit 1002 from the prosecution file in support of its disclaimer argument. On that page, however, is quoted language from several lines of the claim with an argument just prior stating that Silverman does not describe an axis of prices and all that is contained in the quoted language. Patent Owner has not explained sufficiently why we should construe such general remarks as a disclaimer. We also have reviewed the remarks made by the then applicant that the applied prior art displayed prices for which orders exist, but do not agree that Patent Owner has shown why such comments amount to a clear disclaimer or disavowal of the scope of the term "price axis." To disavow claim scope, "the specification or prosecution history [must] make clear that the invention does not include a particular feature." *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (internal citation, quotation, and alterations omitted).

For all of these reasons, we are not persuaded by Patent Owner's arguments regarding the claimed price axis. Based on the record before us, the broadest reasonable interpretation in light of the specification of a "price axis" is a reference line for plotting prices, including labeled, unlabeled, visible and invisible reference lines.

Order Icon Indicating the User's Order

Claim 5 depends directly from claim 1 and recites "displaying an order icon at a location that corresponds to the desired price level along the price axis, the *order icon indicating the user's order at the electronic exchange*." (Emphasis added). Patent Owner argues that an "order icon indicating the user's order at the electronic exchange" should be interpreted to mean "an icon indicating to the user that the user has an order at a particular level along the price axis, distinct from other orders at the same level." PO Resp. 9. Petitioner argues that no construction of the phrase is necessary and that Patent Owner's construction is inconsistent with Figure 3A, which shows the user's order aggregated with other users. Pet. Reply 12. Petitioner further argues that any icon that indicates a user's order, whether aggregated with other orders or separate, meets the claim term. *Id.*

We agree with Petitioner. There is nothing in the language of claim 5 that requires indicating the *specific* user order (separating it out from all other orders) or indicating to the user that it is his order. If an order is placed by a user, resulting in the total quantity of orders placed at that same price to increase, the total number would indicate an increase, and thus, indicate the user's order. Patent Owner argues that because claim 1 recites bid indicators and offer indicators, an order icon must represent something distinct from the

bid/offer indicators. PO Resp. 7–8. But even Patent Owner does not explain why an order icon cannot be one of the offer or bid indicators. Indeed, for the embodiment that Patent Owner directs attention to there is no distinction between offer and bid indicators with order icons (an order icon is one of the indicators). *Id.* We agree with Petitioner that a person of ordinary skill in the art would have understood the '056 patent to use "icons" and "indicators" interchangeably. *See, e.g.*, Pet. 18–20. Thus, we disagree with Patent Owner that the "order icon" of claim 5 cannot be one of the offer or bid indicators.

For all of the above reasons, we decline to interpret an "order icon indicating the user's order at the electronic exchange" to mean "an icon indicating to the user that the user has an order at a particular level along the price axis, distinct from other orders at the same level."

B. The Level of Ordinary Skill in the Art

Notwithstanding the parties' submissions of the level of ordinary skill in the art[10], we find that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

[10] The parties' submissions focus primarily on the degrees, occupations, and experience, as opposed to what the hypothetical person of ordinary skill in the art would have known at the time of the invention. As such, and as the triers of fact, based on the record before us, we do not find such information particularly helpful.

C. 35 U.S.C. § 101 Asserted Ground of Unpatentability

Petitioner contends that claims 1–15 of the '056 patent are unpatentable under 35 U.S.C. § 101. Pet. 24–38. Patent Owner opposes. PO Resp. 11–28.

Section 101 of Title 35, United States Code, provides: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

The Supreme Court recognizes three exceptions to these statutory classes: laws of nature, natural phenomena, and abstract ideas. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012). Although an abstract idea by itself is not patentable, a practical application of an abstract idea may be deserving of patent protection. *Alice*, 134 S. Ct. at 2355. We must "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* (citing *Mayo*, 132 S. Ct. at 1298, 1297). The claim must contain elements or a combination of elements that are "'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [abstract idea] itself.'" *Id.* (citing *Mayo*, 132 S. Ct. at 1294).

1. Abstract Idea

Petitioner argues that claim 1 encompasses the abstract idea of graphing (or displaying) bids and offers to assist a trader to make an order,

which is a fundamental economic practice. Pet. 27. Petitioner further argues that "[n]ot only is the abstract concept a fundamental economic practice, but it is an abstract idea of itself because it can be performed using pen and paper, or even in a trader's mind." *Id.* (citing *CyberSource Corp. v. Retail Decisions*, 654 F.3d 1366, 1372 (Fed. Cir. 2011) (unpatentable mental process performed with aid of pen and paper); Ex. 1032 ¶¶ 91, 205; Ex. 1010, Silverman at FIG. 4 (prior-art plot of same); Ex. 1029, 44–46 (showing a page in a specialist's book that plots bids and asks along a price axis)). In further support of Petitioner's arguments that the claims are directed to an abstract idea because it can be performed in a trader's mind, Petitioner directs attention to a description in the background of the invention section of the '056 patent stating that "the successful trader anticipates the rise or fall of the value of an item and performs his or her own transaction before the rest of the market is aware of the item's potential gain or loss in value." Ex. 1001, 1:28–33.

Petitioner further argues that the abstract idea analysis does not change merely because the claims include details such as displaying bid and offer indicators at locations corresponding to prices of bid and offer orders along the price axis, because those limitations are equally abstract ideas or are irrelevant because they merely provide a degree of particularity. *Id.* at 28 (citing *Ultramercial*, 772 F.3d at 715 (an abstract idea is not concrete merely because the claims include a degree of particularity.)). Lastly, Petitioner argues that the claims do not solve any technological problem but rather are directed to solving a business problem, i.e., anticipating market movement by

providing a graphical representation of what a trader has done in his mind since trading began. *Id.* at 29 (citing Ex. 1001, 1:56–60).

"The 'abstract idea' step of the inquiry calls upon us to look at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter.'" *Affinity Labs of Texas v. DirectTV, LLC,* 838 F.3d 1253, 1257 (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.,* 830 F.3d 1350, 1353 (Fed. Cir. 2016); *see also Enfish, LLC v. Microsoft Corp.,* 822 F.3d 1327, 1335 (Fed. Cir. 2016). There is no definitive rule to determine what constitutes an "abstract idea." Rather, the Federal Circuit has explained that "both [it] and the Supreme Court have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases." *Enfish, LLC v. Microsoft Corp.,* 822 F.3d 1327, 1334 (Fed. Cir. 2016); *see also Amdocs (Israel) Ltd. v. Openet Telecom, Inc.,* 841 F.3d 1288, 1294 (Fed. Cir. 2016) (explaining that, in determining whether claims are patent-eligible under § 101, "the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided").

Notwithstanding Patent Owner's arguments, which we address below, we determine that Petitioner has shown[11] that claim 1 is directed to the

[11] As explained above, determining whether a claim is directed to an abstract idea calls upon us to look at the focus of the claimed advance over the prior art. In order to do so, we must make findings of fact as to the prior art at the time of the invention. Those facts must be supported by a preponderance of the evidence. 35 U.S.C. § 326(e).

abstract idea of graphing (or displaying) bids and offers to assist a trader to make an order, which is a fundamental economic practice.

Claim 1, the sole independent claim, recites in the preamble a method for displaying transactional information and facilitating trading in a system. The method steps include receiving bid and offer information of a product from an electronic exchange, displaying the bid and offer information, receiving a user input indicating a default quantity and price for an order, and sending the order to the electronic exchange. In essence, all that claim 1 requires was well known in the prior art many years before the claimed invention. We agree with Petitioner that claim 1 encompasses the abstract idea of graphing (or displaying) bids and offers to assist a trader to make an order, steps that can be performed using pen and paper, or even in a trader's mind. Pet. 27–28 (citing *CyberSource Corp. v. Retail Decisions*, 654 F.3d 1366, 1372 (Fed. Cir. 2011) (unpatentable mental process performed with aid of pen and paper); Ex. 1032 ¶¶ 91, 205; Ex. 1010, Silverman at FIG. 4 (prior-art plot of same); Ex. 1029, 44–46 (showing a page in a specialist's book that plots bids and asks along a price axis); Ex. 1001, 1:28–33. We further agree with Petitioner that the '056 patent claims simply provide a graphical representation on a computer of what traders have done in their minds since trading began. Pet. 29. Such a system also was well known in the art at the time of the claimed invention. *See, e.g.*, Ex. 1010 (Silverman); *see also infra*, determining that Silverman in combination with other references render obvious the challenged claims.

When we compare claim 1 at issue to those claims already found to be directed to an abstract idea in previous cases, we are persuaded that claim 1 is

more similar to those claims found to encompass an abstract idea than those determined not to encompass an abstract idea.[12] Claim 1 is similar to the claims in *Electric Power*, which did "not go beyond requiring the collection, analysis, and display of available information in a particular field, stating those functions in general terms, without limiting them to technical means for performing the functions that are arguably an advance over conventional computer and network technology." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016).

In comparison, claim 1 is unlike the claims at issue in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) and *Enfish*. In *DDR Holdings*, the court determined that the claims did not embody a fundamental economic principle or a longstanding commercial practice. The claims at issue in *DDR Holdings* were directed to retaining website visitors, which the court determined was a problem "particular to the Internet." *DDR Holdings*, 773 F.3d at 1257. The court also determined that the invention was "necessarily rooted in computer technology in order to overcome a

[12] The claims and specification before us are much broader than the patent specifications and claims involved in *Trading Technologies International, Inc.*, v. *CQG, INC., CQG, LLC, FKA CQGT, LLC*, No. 2016-1616, 2017 WL 192716 (Fed. Cir. Jan. 18, 2017), where the court implied that even those narrower claims are on the line between patent eligibility and ineligibility (*see id.* at *4 (noting the "close question[] of eligibility")). The Specification of the '056 patent is different, and does not claim priority to the applications that matured into the patents involved in that decision. Thus, comparing the claims of the patents involved in *Trading Technologies* is not particularly helpful here, because the claims here are nothing more than "displaying, and selecting data or information that is visible on the [graphical user interface] device." *Trading Technologies*, 2017 WL 192716 at *2.

problem specifically arising in the realm of computer networks," and that the claimed invention did not simply use computers to serve a conventional business purpose. *Id.* In *Enfish*, the claim at issue was directed to a data storage and retrieval system for a computer memory. *Enfish*, 822 F.3d at 1336–37. The court determined that the claims were directed to an improvement in the functioning of a computer and were not simply adding conventional computer components to well-known business practices. *Id.* at 1338. Here, claim 1 is directed to a fundamental economic principle or a longstanding commercial practice and not directed to an improvement in the computer.

We have considered all of Patent Owner's arguments regarding why the claims are not directed to an abstract idea but are not persuaded by such arguments. PO Resp. 11–21. Patent Owner argues that Petitioner oversimplifies the claims and ignores the structure and functionality recited in the claims, such as the "bid indicators being displayed at locations corresponding to prices of the plurality of bid orders" and the "offer indicators being displayed at locations corresponding to prices of the plurality of offer orders along the price axis," elements that Patent Owner deems to be "GUI elements." *Id*. at 11–12. Here, bid and offer indicators are broad terms, whereby an indicator can simply be an alphanumeric symbol. Moreover, none of the claims recite a "GUI" or graphical user interface. Arguably, the only claim 1 step that would be in the realm of requiring a GUI, would be the step of "receiving a user input indicating a desired price … the desired price being specified by *selection of one of a plurality of locations* corresponding to price levels along the price axis." (Emphasis

added). We disagree that Petitioner has oversimplified the claims and ignores the structure and functionality recited in the claims. Petitioner's arguments are commensurate in scope with the breadth of the claims.

Nor are we persuaded by Patent Owner's arguments that the claimed GUI improves the computer because it allows the computer to be used in new and inventive ways. PO Resp. 13–16. Patent Owner's arguments are general and not specific to the claim language before us. In any event, to the extent that Patent Owner asserts that claims that require a GUI are automatically patent eligible, that assertion is not commensurate with our reviewing court's holdings on the issue of patent eligibility. For example, the claim at issue in *Affinity Labs* recited an application that enabled a cellular telephone to present a GUI displaying a list of media sources that included selectable items for selecting a regional broadcasting channel. *Affinity*, 838 F.3d at 1255–56. The claim also recited that the cellular telephone was enabled to transmit a request for the selected regional broadcasting channel. *Id.* at 1256. In *Ameranth*, the claim at issue recited a GUI that displayed menu items in a specific arrangement, a hierarchical tree format. Menu items were selected to generate a second menu from a first menu. *Apple, Inc., v. Ameranth, Inc.*, 842 F.3d 1229, 1234 (Fed. Cir. 2016). In both *Affinity Labs* and *Ameranth*, the court determined that the claims were not directed to a particular way of programming or designing the software, but instead merely claim the resulting systems and determined that the claims are not directed to a specific improvement in the way computers operate. *Affinity Labs*, 838 F.3d at 1260–61, *Ameranth*, 842 F.3d at 1241. The same is true here in that the claims are not directed to any particular way of programming or designing software, but

merely claim the resulting system and not any specific improvement in the way a computer operates.

Patent Owner argues that the claims are not to an abstract idea because they are not directed to a fundamental idea, longstanding commercial practice, a business method, or a generic GUI. PO Resp. 16–20. Patent Owner argues that in contrast to many other cited cases, the claims here are directed to the specific structure, make-up, and functionality of a particular GUI. *Id.* But the only specific feature that Patent Owner discusses is the claimed price axis and even then Patent Owner fails to explain why the recitation of a price axis takes the claim out of abstractness. A price axis is nothing more than a reference line for plotting prices. It can include labeled, unlabeled, visible, and invisible reference lines. There is nothing apparently special about an axis, even a price axis, and Patent Owner has failed to explain sufficiently why a price axis removes the abstractness from the claims. This is true even if Patent Owner's narrow proposed "clarification" were adopted.

We have considered Patent Owner's arguments regarding dependent claims 5–7, and why those claims "recite even more structure and function of the specific GUI tool and are even less directed to any abstract idea." PO Resp. 20–21. Patent Owner's arguments are premised on a narrow construction of claim 5 requiring "an additional indicator beyond the bid/offer indicators to indicate to a user something about that user's own order." *Id.* at 20. For reasons provided above, we decline to adopt Patent Owner's narrow construction. In any event, and even assuming the narrow construction is the correct construction, Patent Owner has not shown how a

an indicator indicating to a user something about that user's own order makes claims 5–7 less abstract. Lastly, we disagree with Patent Owner that Petitioner did not address sufficiently the dependent claims in the Petition. Petitioner addressed all of the dependent claims. *See, e.g.*, Pet. 37–38.

Inventive Concept

To be patent eligible, a claim to an otherwise abstract idea must recite additional elements that constitute an inventive concept. *Alice*, 134 S. Ct. at 2357. One looks to "[t]he elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Mayo*, 132 S. Ct. at 1297–98. The additional elements must be more than "well-understood, routine, conventional, activity." *Mayo*, 132 S. Ct. at 1298.

Petitioner argues that the claim 1 steps of receiving bid and offer information, receiving an order including a default quantity and a selected price, and sending the order to an exchange to be executed were well-understood, routine, and conventional activity that adds nothing significant to the abstract idea. *Id.* 30–31. Petitioner further argues that the claims are not rooted in computer technology because they do not overcome a problem specifically arising in the realm of computers or computer networks. *Id.* at 33 (citing *DDR Holdings*, 773 F.3d at 1257). Petitioner argues that the '056 patent specification admits that the problem was business, financial or trader-related, and not arising in computers or otherwise dependent upon computer components, and to the extent that a computer is used it is used only for its basic function such as displaying data and accepting user inputs. *Id.* at 34–35; Ex. 1032 ¶ 205.

Lastly, Petitioner argues that dependent claims 2–15 add only well-understood, routine, conventional post-solution activity to the abstract idea of claim 1, such as displaying a sent order (claim 5), displaying bids, offers, and an order with different characteristics (claim 6), and displaying the quantity of an order (claim 7). PO Resp. 37–38.

Notwithstanding Patent Owner's arguments, which we address below, we are persuaded that Petitioner has shown that none of the additional claim elements in claim 1 or dependent claims 2–15 transforms the nature of the claims into a patent-eligible application. Claim 1 recites "a method of operation used by a computer for displaying transactional information and facilitating trading in a system where orders comprise a bid type or an offer type." Ex. 1001, 13:60–62. The '056 patent specification does not describe any specific computer, program, or processing beyond what was known in the art at the time of the invention for implementing the claimed system. Moreover, and to the extent that the claims require a GUI, a mere recitation of a GUI does not make the claim patent eligible. *See Affinity Labs*, 838 F.3d at 1257–58, *Ameranth*, 842 F.3d at 1236–1242, *Internet Patent Corp.*, 790 F.3d at 1348–1349. A recitation of a generic GUI merely limits the use of the abstract idea to a particular technological environment. "Limiting the field of use of the abstract idea to a particular existing technological environment does not render any claims less abstract." *Affinity Labs*, 838 F.3d at 1258 (citing *Alice*, 134 St. Ct. at 2358; *Mayo*, 132 S. Ct. at 1294).

Claim 1 also recites receiving bid and offer information for a product from an electronic exchange, but does not specify any particular method for doing so. The claim requires displaying a plurality of bid indicators and offer

indicators along a price axis. Essentially, these limitations require plotting bids and offers for a product along a price axis. Plotting information along an axis was a well-understood, routine, conventional, activity. Claim 1 further recites receiving a user input indicating a quantity to be used for each of a plurality of orders to be placed, and indicating a desired price for an order to be placed by selecting one of the locations corresponding to the price along the price axis. Inputting data into a computer was also a well-understood, routine, conventional activity. Finally, the step of sending an order for the quantity and price to the electronic exchange was conventional and well known in the art. *See*, *e.g.*, Ex. 1010. The additional elements must be more than "well-understood, routine, conventional, activity." *Mayo*, 132 S. Ct. at 1298.

We also agree with Petitioner that none of claims 2–15 transforms the nature of the claims into a patent-eligible application. For example, claims 2–4 recite the further steps of accepting and sending additional orders in the same manner as claim 1. We further agree that claims 5–15 relate to conventional pre- or post-solution activity such as displaying of data (claims 5–9 and 14), basic GUI techniques (claims 11–13 and 15), or conventional point and click technology as recited in claim 10. We agree that these claims recite well-understood, routine, conventional extra-solution activity that are not related to an inventive concept.

Patent Owner argues that the claims pass part two of *Alice* because they recite an inventive concept. PO Resp. 21–28. But in making such arguments, Patent Owner does not explain sufficiently what about the claims qualifies as an inventive concept. For example, Patent Owner describes the

claims as reciting "structural details of a specific GUI that functions differently from prior art GUIs to solve GUI-centric problems." *Id*. at 24. Patent Owner goes on to argue that the "solution to these problems is not only rooted in computer technology, but is *new computer technology itself*; a new GUI with the claimed structure, make-up, and functionality." *Id*. (emphasis added). In making similar arguments regarding features and claims that are not before us in this proceeding (*see, e.g.*, PO Resp. 25–28), Patent Owner fails to focus on the claims before us or explain with respect to the actual elements of these claims why such elements constitute an inventive concept. We are not persuaded by Patent Owner's arguments.

The individual elements of the claims do not transform the nature of the claims into a patent-eligible application. They do not add significantly more to the abstract idea or fundamental economic practice. Contrary to Patent Owner's argument, the claims simply recite the use of a generic computer with routine and conventional functions. Further, considering all of the elements as an ordered combination, we determine that the combined elements also do not transform the nature of the claims into a patent-eligible application.

For all of the above reasons, Petitioner has shown sufficiently that claims 1–15 of the '056 patent are not directed to patent eligible subject matter under 35 U.S.C. § 101.

D. Obviousness of Claims 1–15 over TSE, Togher, Schott, and Cooper

Petitioner contends that claims 1–15 are unpatentable under 35 U.S.C. § 103 over TSE, Togher, Schott, and Cooper. To support its contentions,

Petitioner provides explanations as to how the prior art meets each claim limitation. Pet. 38–60. Petitioner also cites the Declaration of Kendyl A. Román for support. *See* Ex. 1032 ¶¶ 114–120.

Patent Owner argues that Petitioner fails to establish that TSE was publically accessible, and, thus, prior art. PO Resp. 34–41. Patent Owner also argues that it conceived of the invention prior to the TSE date, and diligently reduced the invention to practice. *Id.* at 41–55. Patent Owner submits arguments and objective evidence of nonobviousness. *Id.* at 55–64. Lastly, Patent Owner separately argues for the patentability of claims 5–7. *Id.* at 64–68.

TSE as prior art

Petitioner argues that TSE is prior art under 35 U.S.C. § 102(a). Pet. 21–22. In support of its showing that TSE qualifies as prior art, Petitioner relies on the November 21, 2005, deposition testimony of Atsushi Kawashima taken during litigation between Patent Owner and a third party, eSpeed, Inc. *Id.*; Ex. 1007.

Whether a document qualifies as a printed publication under 35 U.S.C. § 102(a) is a question of law based on underlying findings of fact. *In re Enhanced Sec. Research, LLC*, 739 F.3d 1347, 1354 (Fed. Cir. 2014) (citing *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986)). The Federal Circuit "has interpreted § 102 broadly, explaining that even relatively obscure documents qualify as prior art so long as the public has a means of accessing them." *Id.* (citing *Hall*, 781 F.2d at 899).

> Our leading case on public accessibility is *In re Hall*, 781 F.2d 897 (Fed. Cir. 1986). In *Hall* we concluded that "a single cataloged

> thesis in one university library" constitutes "sufficient accessibility to those interested in the art exercising reasonable diligence." *Id.* at 900. Thereafter, in *Constant v. Advanced Micro–Devices, Inc.*, we explained that "[a]ccessibility goes to the issue of whether interested members of the relevant public could obtain the information if they wanted to." 848 F.2d 1560, 1569 (Fed. Cir. 1988). Therefore, "[i]f accessibility is proved, there is no requirement to show that particular members of the public actually received the information." *Id.*

Enhanced Sec. Research, LLC, 739 F.3d at 1354. The determination of whether a document is a "printed publication" under 35 U.S.C. § 102 involves a case-by-case inquiry into the facts and circumstances surrounding its disclosure to members of the public. *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004).

TSE is entitled "Futures/Option Purchasing System Trading Terminal Operation Guide" of the "Tokyo Stock Exchange Operation System Division." Ex. 1004, 1.[13] In the middle of page 5 is the annotation "August, 1998" above the words "Tokyo Stock Exchange Operation System Division." *Id.* at 5. Petitioner argues that TSE is prior art under 35 U.S.C. § 102(a) because it was published in August of 1998 by giving two copies to each of the about 200 participants in the Tokyo Stock Exchange, who were free to do whatever they wanted with their copies of the publication. Pet. 21–22 (citing Ex. 1007, 0012–33).

In support of its arguments regarding TSE as prior art, Petitioner directs us to portions of Mr. Kawashima's testimony. At the time of his

testimony, Mr. Kawashima testified that he was employed by the Tokyo Stock Exchange and was so at the time of the TSE manual, August 1998. Ex. 1007, 0005–0011. He further testified that TSE "is the current TSE futures options trading system terminal document, manual" that was prepared August of 1998 by the Tokyo Stock Exchange and that he was in charge of preparing the document. Ex. 1007, 0010–0011. Mr. Kawashima also testified that the purpose of the manual was that "in 1998 we replaced the futures options trading system and so this new manual was prepared because there were changes to the way the trading terminals were operating." *Id.* at 0012. Kawashima further testified that the manual was distributed to "participants" in August of 1998, who were "securities companies for banks who are able to carry out futures options trading at the TSE" and that the "manual was given to explain those changes" made with respect to the operation of the TSE trading system and terminals. *Id.* at 0012, 0014. Mr. Kawashima testified that the manual was given to around 200 "participant" companies—all companies that conduct futures option trading on the Tokyo Stock Exchange. *Id.* at 0013.[14] According to Mr. Kawashima, two copies were distributed to each company, by having a person from each company come to the Tokyo Stock Exchange operating system section to pick up their copies of the manual, and that there was no restriction on what the participants could do with the 1998 manual once they received it. *Id.* at 0014–0015. Mr.

[13] References are to pages located at center bottom of the English translation of TSE (Ex. 1004).

[14] We understand the then "participants" included such companies as Goldman Sachs Securities, Merrill Lynch, and Morgan Stanley. Ex. 2163,

Kawashima personally distributed the TSE manual to some of the participants. Ex. 2163, 60:13–24.

Notwithstanding Patent Owner's arguments, which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that TSE qualifies as prior art under 35 U.S.C. § 102(a). Petitioner asserts, with supporting evidence, that TSE was distributed to *participants* in the Tokyo Stock Exchange. Pet. 21; Ex. 1007, 0012, 0014. Based on the evidence before us, the participants were securities companies for banks. The purpose of the distribution of the manual was to alert the securities companies of *changes to the way the trading terminals* of the Tokyo Stock Exchange *operated*. Ex. 1007, 0012, 0014. Indeed, TSE is a user manual that includes for example, in Chapter 2, instructions for terminal system configuration to enable a participant, such as a security company to connect to the Tokyo Stock Exchange. Ex. 1004, 10–25. Chapter 15, entitled "Response To A Problem" provides detailed explanations should a problem arise with terminal equipment, communication circuit difficulties, central system recovery difficulties, etc., along with in-house procured terminal problem handling instructions. *Id.* at 5. Thus, TSE is more than a user manual for how to trade on the Tokyo Stock Exchange, but also includes how to connect electronically to the Tokyo Stock Exchange.

The evidence that is before us, both circumstantial and direct, supports a finding that TSE was made accessible to securities companies and all of the personnel in such a company, who would have employed technical support

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58:5–17; Ex. 2169 ¶ 22.

personnel, such as computer scientists or engineers, who would have needed a copy of the TSE manual to configure their own system to communicate electronically, and to continue to trade securities, with the Tokyo Stock Exchange.[15] Thus, the securities companies would have included computer scientists or engineers, as well as traders. We find that all such persons who worked at the securities companies would have been interested members of the relevant public.

Patent Owner's Contentions[16]

Patent Owner argues that the evidence fails to prove TSE is prior art. PO Resp. 34–41. We begin by addressing Patent Owner's assertions that Mr. Kawashima's testimony should be given little or no weight because his testimony is not corroborated and he is an interested witness. *Id*. at 39–41. Patent Owner argues that Kawashima's employer—the Tokyo Stock Exchange—challenged Patent Owner's Japanese counterpart to U.S. Patent No. 6,766,304 by providing TSE to the Japanese Patent Office. *Id*. at 40. Patent Owner further argues that the Tokyo Stock Exchange wanted the Japanese Patent Office to rely on "these documents" to prevent TT from obtaining the Japanese patent. *Id*. at 40–41 (citing Ex. 2163, 39:23–40:20, 42:14–43:10; Ex. 1007, 0110:10–14). Patent Owner concludes that because

[15] We made a similar finding in our Decision to Institute (Dec. 19), thereby putting Patent Owner on notice of such finding in support of our determination that TSE was publically accessible. Patent Owner does not address such finding or provide evidence to rebut our finding in that regard. *Cuozzo*, 136 S. Ct. at 2141.

[16] Patent Owner makes unpersuasive evidentiary arguments as well, which we address in connection with Patent Owner's Motion to Exclude TSE (Ex.

Kawashima's employer tried to use TSE to prevent TT from obtaining the 6,766,304 patent, Kawashima is not disinterested. *Id*. at 41.

We are not persuaded that Kawashima is an interested witness and that his testimony should be given little weight. First, the patent involved here is not the same as the patent involved before the Japanese Patent Office and we do not understand what Patent Owner means by "these documents." In any event, Patent Owner has not shown that what occurred in a proceeding before the Japanese Patent Office involving a different patent is relevant to the facts of this proceeding. Patent Owner has not shown sufficiently that Mr. Kawashima had an interest, himself, regarding the outcome of the Japanese Patent Office proceeding. Even assuming that the Tokyo Stock Exchange had an interest in that earlier proceeding, it does not follow necessarily that Mr. Kawashima himself had an interest in it as well. We have considered the evidence to which we are directed, but do not find that evidence (passages from Mr. Kawashima's original and cross examination) to support Patent Owner's assertions that Mr. Kawashima is biased. Indeed, when asked if the Tokyo Stock Exchange preferred that vendors like Trading Technologies not have patents on trading screens, Mr. Kawashima testified, that that was "not something I would know." Ex. 2163, 41:6–12. Lastly, Patent Owner has not demonstrated sufficiently that Mr. Kawashima's meetings with Petitioners' attorneys prior to his cross examination is demonstrative of "bias." PO Resp. 41. Patent Owner has not shown why Mr. Kawashima's meeting with Petitioner's counsel prior to his deposition would make him biased. For

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1003), *infra*.

these reasons, we are not persuaded that Mr. Kawashima is an interested witness.

We also are not persuaded by Patent Owner's argument that because Mr. Kawashima's testimony is uncorroborated we should give it little weight. PO Resp. 39–40. In support of the argument, Patent Owner cites to cases regarding an *interested witness*. *See, e.g.*, *id*. at 39. As explained above, Patent Owner has not shown sufficiently that Mr. Kawashima is an interested witness. The other arguments made, e.g., that there is no evidence of when the manuals were picked up or by whom or what a person did with the document once they received it, are factors to consider when determining whether a document was publically accessible, which we address below.

For all of these reasons, we credit the testimony of Mr. Kawashima. We find that the facts discussed above regarding Mr. Kawashima's testimony (Ex. 1007) are supported by a preponderance of the evidence and are undisputed.[17] Although Mr. Kawashima was cross-examined during this proceeding, Patent Owner does not direct attention to portions of his cross examination testimony, or any other evidence, that would outweigh Mr. Kawashima's original testimony (Ex. 1007) regarding what the TSE manual was, why it was distributed, how it was distributed, when it was distributed, and to whom it was distributed.

[17] The burden of showing something by a preponderance of the evidence simply requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence. *Concrete Pipe & Products of California, Inc. v. Construction Laborers Pension Trust for Southern California*, 508 U.S. 602, 622 (1993).

Patent Owner argues that Petitioner has not established that TSE was publically available. In particular, Patent Owner argues that there is no evidence that anyone actually received a copy of TSE or whether the receivers of such document were persons of ordinary skill in the art. *Id*. at 35–36 (quoting *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (a reference will be considered publicly accessible if it was "disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.'")).

Patent Owner's argument that there is no evidence that anyone actually received a copy of TSE is misplaced. The proponent of a document need not show that particular members of the interested public *actually received* the information. *See, e.g.*, *In re Enhanced Sec. Research, LLC*, 739 F.3d 1347, 1354 (Fed. Cir. 2014); *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1569 (Fed. Cir. 1988); *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016). Rather, accessibility goes to the issue of whether persons interested in the subject matter could obtain the information if they wanted to. *Id*. Here, we have before us persuasive evidence that TSE was made publically accessible by providing two copies to each of the about 200 participants (securities companies for banks) in the Tokyo Stock Exchange, who were free to do whatever they wanted with their copies of the publication. Ex. 1007, 0012, 0014. For these same reasons, we are not persuaded by Patent Owner's implicit argument that Petitioner need show that the two copies of the TSE manual available for pick up by the 200 participant companies actually were picked up. In any event, Mr.

Kawashima testified that he personally distributed the TSE manual to some of the participants. Ex. 2163, 60:13–24.

Patent Owner argues that the participants (securities companies for banks) who allegedly received copies of the TSE manual are not persons of ordinary skill in the art, which Patent Owner submits would be GUI designers, and not traders at a stock exchange. PO Resp. 37. We are not persuaded by Patent Owner's argument.

The patent before us is a business method patent, the subject matter of which is represented by both the business and technical sides of the spectrum. Here, where the patent is directed to trading commodities on an exchange using a computer, we must consider all interested members of the public, which would include not only technical personnel, but traders as well.[18] Traders of commodities at securities companies for banks would be interested members of the public.

In any event, there is sufficient evidence for us to find that the securities companies for banks also would have employed technical personnel as well, and even a "GUI designer." As explained above, the purpose of the TSE manual was to alert the securities companies of changes to the way the trading terminals of the Tokyo Stock Exchange *operated*. Ex. 1007, 0012, 0014. The TSE manual includes information and instructions of how to connect electronically to the Tokyo Stock Exchange. TSE is not

[18] We note that one of the inventors of the '056 patent has extensive experience as a broker or trader, while the other has a legal background, and some experience "developing game simulations" but neither are "GUI designers." Ex. 2167 ¶¶ 4–7; Ex. 2181 ¶¶ 4–6.

simply a "how to trade commodities" user manual as Patent Owner seems to suggest. The strong circumstantial evidence supports finding that TSE was made accessible to securities companies who would have employed technical support personnel, such as computer scientists or engineers, to configure their system to communicate electronically, and to continue to trade securities, with the Tokyo Stock Exchange, based on the changes in operation of the terminals explained in the TSE manual. Thus, the securities companies would have included computer scientists or engineers, as well as traders. Lastly, even assuming that a person of ordinary skill in the art is narrowly limited to a "GUI designer" as Patent Owner asserts, we find that securities companies for banks ("participants") provided their own front-end order entry software, and that such participants would have employed GUI designers to formulate the front-end order entry software to facilitate trading on the Tokyo Stock Exchange. Ex. 2169 ¶ 22; Ex. 1060, 136:17–138:1.

Patent Owner argues that because participants of the Tokyo Stock Exchange were contractually prohibited from modifying the terminals or software, there was no reason to provide the manual to GUI designers. PO Resp. 37. Patent Owner has not shown sufficiently that such a contractual provision would have prevented persons interested or even ordinarily skilled in the subject matter from receiving copies of TSE. For all of the above reasons, we are persuaded that TSE was publically accessible.

Patent Owner additionally argues that there is no evidence that a person having ordinary skill in the art could have located TSE using "reasonable diligence," because there is no evidence that such a person searching for TSE would find it, such as being placed in a library, indexed, or

catalogued, or directions to locate TSE. PO Resp. 38–39. We determine above, that the record evidence supports a determination that TSE was publically accessible to persons interested and even ordinarily skilled in the subject matter. Patent Owner's arguments are premised on the notion that none of the personnel at the securities banks are interested and ordinarily skilled in the subject matter, which we reject. Thus, Patent Owner's argument is moot. For all of the above reasons, we determine that TSE qualifies as prior art.

Patent Owner's Showing of Prior Invention

Patent Owner argues that if TSE qualifies as prior art, it nonetheless conceived of the invention before distribution of TSE, and diligently reduced the invention to practice thereafter. PO Resp. 41–55.

Patent Owner alleges that the invention was conceived no later than March 1998, actually reduced to practice no later than November 30, 1998, and constructively reduced to practice April 9, 1999, upon the filing of the priority patent application to which the involved patent claims benefit. PO Resp. 43 (citing Ex. 2167 ¶ 12).

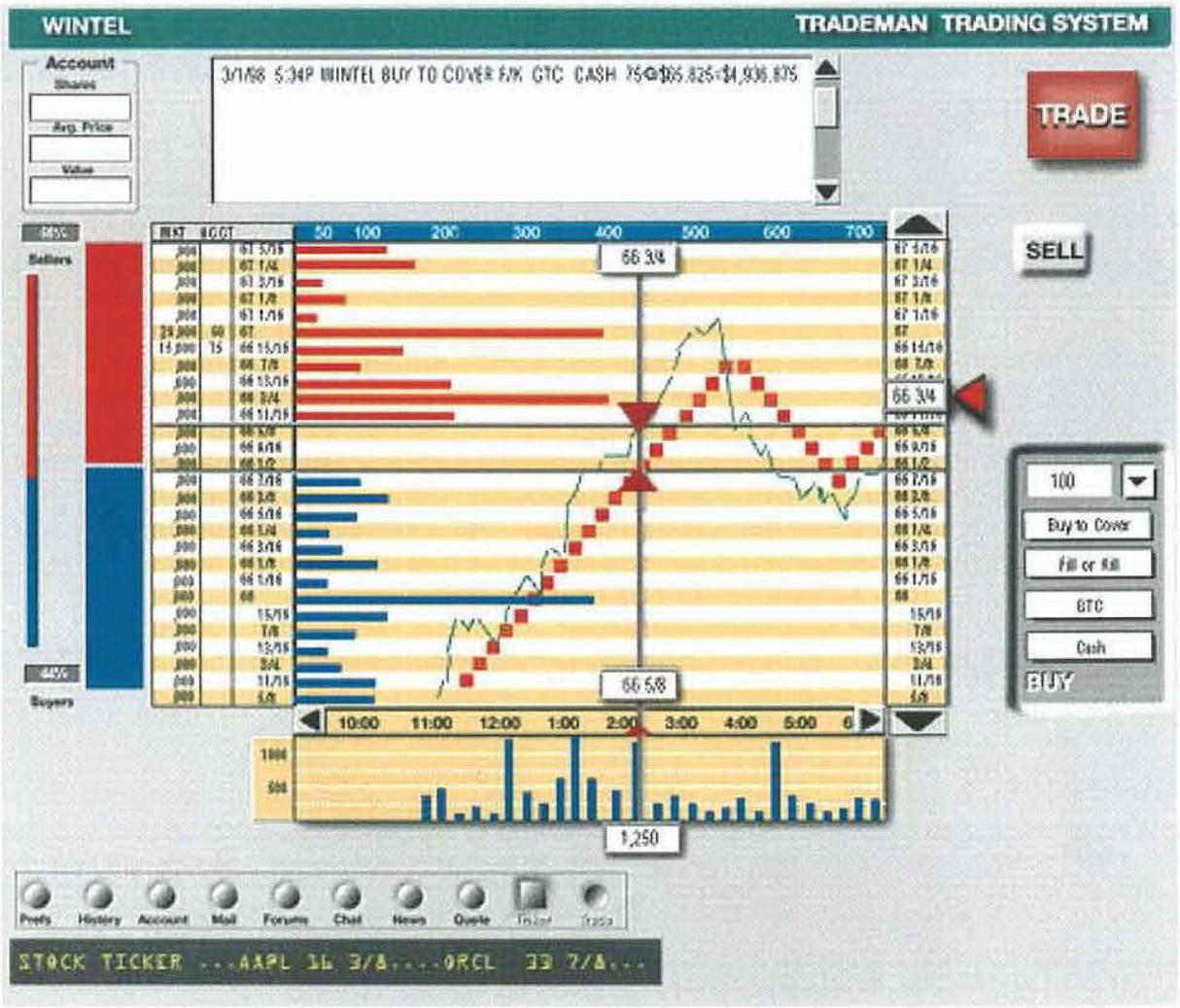
Conception

"Conception must be proved by corroborating evidence which shows that the inventor disclosed to others his completed thought expressed in such clear terms as to enable those skilled in the art to make the invention." *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985).

Patent Owner relies on the declarations of the two named inventors of the '056 patent (Exs. 2167 (Declaration of Richard Friesen) and 2181 (Declaration of Peter C. Hart)), along with a "Trading Game Design

Document" (Ex. 2301 "Design Document"). Patent Owner argues that the Design Document exhibited each element of claim 1. PO Resp. 45 (citing Ex. 2167 ¶ 18; Ex. 2181 ¶ 17). In support of that assertion, Patent Owner directs attention to an annotated version of the screen capture shown on page "PH00000004" of the Design Document, which is relied upon to corroborate the testimony of the inventors. *Id*. at 45–49. We are not persuaded by Patent Owner's showing for the following reasons.

First, it is difficult to discern what is shown on page "PH00000004" of the Design Document with respect to the screen shot. The screen shot from Exhibit 2301 is reproduced here:



Screen capture of complete sample Trading System GUI [3]

As seen from above, the screen shot is blurry, and not easily readable. This is the evidence that Patent Owner relies on to corroborate the testimony of the named inventors of the ’056 patent for certain claim 1 elements. For example, Patent Owner argues that for “displaying a plurality of bid indicators representing quantity associated with the plurality of bid orders” and “displaying a plurality of offer indicators representing quantity associated with the plurality of offer orders,” the above screen shot

corroborates inventor testimony that these elements are met. PO Resp. 46–48. Patent Owner annotates the above figure with three inserted boxes. *See, e.g., id*. at 47. The far right vertical listing of what appears to be numbers, is annotated with "this is a price axis." The red bars seen above have been annotated with "these red bars represent the quantity of pending offer orders at a particular price" and the blue bars have been annotated with "these blue bars represent the quantity of pending bid orders at a particular price."

We have reviewed the Patent Owner's arguments and evidence to which we are directed regarding conception. The testimony of the inventors is nearly the same as each other and to the Patent Owner Response at pages 45–50. *Compare*, Ex. 2167 ¶¶ 18–19 with Ex. 2181 ¶¶ 17–18. For the sheer fact that we cannot read the blurry screen shot, we do not find that such screen shot corroborates the testimony of the inventors. We will not simply take the inventor's words at face value for what the blurry screen shot shows. In any event, we agree with Petitioner that it has not been established sufficiently that the red and blue bars represent quantity associated with the plurality of bid [and offer] orders. Pet. Reply 17–18. As pointed out by Petitioner, the red and blue bars could represent the number of orders in the market. *Id*.

Reduction to Practice and Diligence

Because Patent Owner has failed to show that it conceived of the invention, we need not consider Patent Owner's arguments with respect to its alleged reductions to practice (both actual and constructive), which occurred *after* August 1998, the date of TSE. Nonetheless, we make the following

observations regarding Patent Owner's alleged reduction to practice and diligence.

In order to establish an actual reduction to practice, the inventor must establish that: (1) the inventor constructed an embodiment or performed a process that met all of the claim limitations; and (2) the invention would work for its intended purpose. *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998). The inventor's testimony must be corroborated by independent evidence. *Id.* at 1330. A rule of reason applies to determine whether the inventor's testimony has been corroborated. *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993). "The rule of reason, however, does not dispense with the requirement for some evidence of independent corroboration." *Coleman*, 754 F.2d at 360. The requirement of "independent" corroboration requires evidence other than the inventor's testimony. *In re NTP, Inc*. 654 F.3d 1279, 1291 (Fed. Cir. 2011).

It is well settled that "[t]here cannot be a reduction to practice of the invention . . . without a *physical embodiment* which includes all limitations of the claim." *UMC Elecs. Co. v. United States*, 816 F.2d 647, 652 (Fed. Cir. 1987) (emphasis added). "It is equally well established that every limitation of the [claim] *must exist* in the embodiment and be shown to have performed as intended." *Newkirk v. Lulejian*, 825 F.2d 1581, 1582 (Fed. Cir. 1987) (emphasis added).

Patent Owner alleges that it reduced the invention to practice no later than November 30, 1998. PO Resp. 55. Based on the evidence before us, we are not persuaded that Patent Owner has demonstrated that the claimed system was actually reduced to practice. Claim 1 requires "receiving bid and

offer information for a product from an electronic exchange" and "sending the order for the default quantity at the desired price to the electronic exchange." Patent Owner acknowledges that the GUI it relies on to show an actual reduction to practice was not connected to an electronic exchange. PO Resp. 54 ("Because this was a simulated market, real money was not at stake and live orders were not being transmitted to any exchange."). Thus, Patent Owner has failed to show that it reduced to practice all of the elements of claim 1, which would include "receiving bid and offer information for a product from an electronic exchange" and "sending the order for the default quantity at the desired price to the electronic exchange."

For similar reasons, Patent Owner has not demonstrated sufficiently that the simulated GUI worked for its intended purpose. *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998). Patent Owner has not directed us to evidence to show that the GUI tested on November 24 and December 16, 1998, for example, worked for its intended purpose. Again, Patent Owner acknowledges that "real money was not at stake and live orders were not being transmitted to any exchange." PO Resp. 54. Thus, having considered all of Patent Owner's arguments and evidence to which we are directed in support of the arguments, we are not persuaded that Patent Owner demonstrates sufficiently that it reduced the invention to practice no later than November 30, 1998.

Lastly, we address Patent Owner's contention that it was diligent from just prior to August 1998 until it filed U.S. Patent Application No. 09/289,550 ("'550 application") on April 9, 1999, from which the application that matured into the '056 patent claims priority. PO Resp. 55 (citing Ex.

2167 ¶ 37; Ex. 2181 ¶ 37). As provided above, Patent Owner has not shown that it conceived the invention prior to August 1998, but even if it had, Patent Owner has not established that it was reasonably diligent from a time just prior to August 1998 until April 9, 1999, e.g., "the critical period."

A party alleging diligence must account for the entire critical period. *Griffith*, 816 F.2d at 626. Even a short period of unexplained inactivity may be sufficient to defeat a claim of diligence. *Morway v. Bondi*, 203 F.2d 742, 749 (CCPA 1953); *Ireland v. Smith*, 97 F.2d 95, 99–100 (CCPA 1938). "A patent owner . . . must show there was *reasonably continuous* diligence." *Perfect Surgical Techniques, Inc. v. Olympus Am., Inc.*, 841 F.3d 1004, 1009 (Fed. Cir. 2016) (citations omitted) (vacating and remanding the Board's decision finding Patent Owner had not proven the inventor was reasonably diligent in reducing his invention to practice). An inventor's testimony regarding his reasonable diligence must be corroborated by evidence. *Brown v. Barbacid*, 436 F.3d 1376, 1380 (Fed. Cir. 2006).

Patent Owner argues that the invention was constructively reduced to practice with the filing of the '550 application on April 9, 1999, "a reasonable span of diligence." PO Resp. 55 (citing Ex. 2167 ¶ 37; Ex. 2181 ¶ 37). We focus our discussion on the period from around mid-December until April 9, 1999. Patent Owner has not directed us to sufficient evidence showing that it was diligent for that period. For example, Mr. Freisen testifies that no later than December 11, 1998, he met with Robert Sachs from Fenwick & West and that over the next three months, "Mr. Sachs and I exchanged several communications regarding patent application preparation and prosecution strategy." Ex. 2167 ¶ 37. The only corroborating evidence

that we are directed to during the mid-December until April 9, 1999 time frame is an email from "Unspecified Sender." Ex. 2329. This exhibit is only referenced in Mr. Freisen's declaration. It is not explained in any way by Patent Owner or even in the context of Mr. Freisen's declaration. We decline the invitation to try to figure out what the email is all about. The email has not been shown to corroborate any acts of diligence by the inventors. For these additional reasons, Patent Owner has not accounted sufficiently for the critical period from a time just prior to August 1998 until April 9, 1999.

Analysis

TSE describes a trading system that facilitates trading with an electronic exchange by receiving bid and offer information, displaying it to a user, and accepting and sending bid and offer orders. Ex. 1004, 6–13, 35. A trading terminal displays a GUI for depicting market information on a Board/Quotation Screen (*see id.* at 107). The Figure on page 107 of TSE is reproduced below.

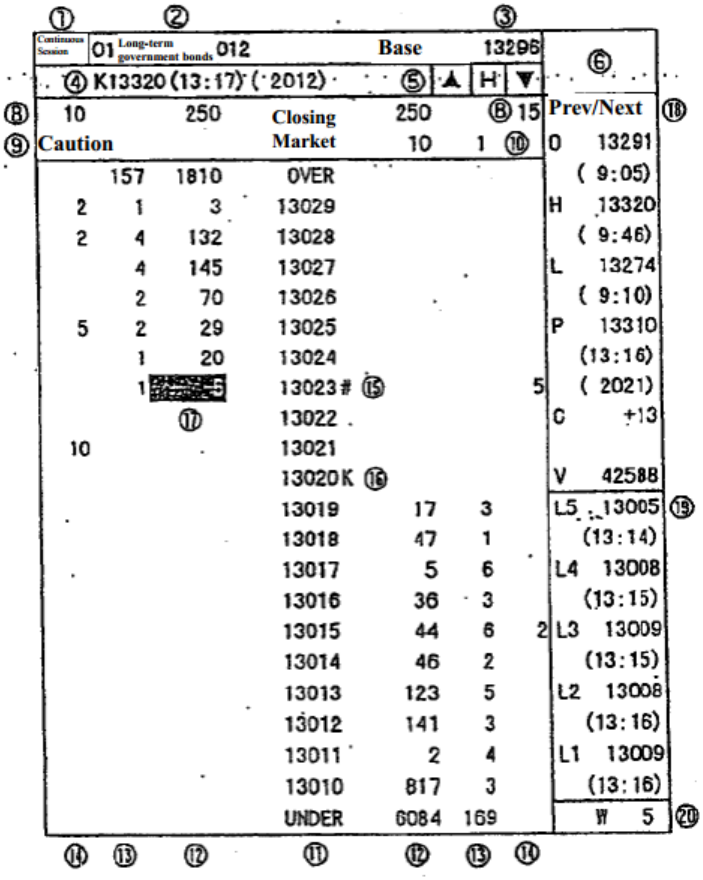


Figure depicting the Board/Quotation Screen

The Board/Quotation Screen includes a central order price at column 11—a price axis. *Id.* at 111. To the left and right of order price column 11, at a location corresponding to price, are bid and offer indicators consisting of numbers representing the quantity of orders in respective columns 12, 13, and 14. *Id.* at 112. The Board/Quotation screen is automatically updated with new bid and offer information from a central system every three seconds. *Id.* at 91. TSE describes a user entering an order by double-clicking at a location along the price axis, which

automatically displays a pop-up window displaying the selected price. *Id.* at 134, 137. Clicking a send button sends an order to the exchange. *Id.* at 143.

Petitioner identifies the difference between the claimed invention and TSE, explaining that TSE does not describe a default quantity, nor does TSE describe graphical displays. Pet. 38–39. Petitioner relies on Togher and Cooper to teach a default quantity and Schott to teach graphical displays. *Id.*

Togher describes a computer displaying transactional information and facilitating trading with bid and offer orders. Ex. 1008, Abs., Figs. 1–3. Togher describes receiving bid and offer information from an electronic exchange. *Id.* at 6:67–7:19. A user can enter a default quantity called a Normal Trade Size into the Trader Profile screen (Figure 4) and the quantity may be used for subsequent orders with the same quantity. *Id.* at 12:7–10.

Schott describes a computer system that displays graphical indicators representing quantities. Ex. 1009, Abs. In particular, Schott describes representing a given quantity by graphing data in the depiction of a pie chart or bar graph. *Id.* at Figs. 26C, 26D, 19A.

Cooper describes that for user interface designs, it was known to retain a user's last-entered quantity. Ex. 1015, 187–188.

We have reviewed the Petition and the supporting evidence to which we are directed as to how TSE meets all of the claim limitations with the exception of a default quantity and graphical displays. Pet. 39–60. We are persuaded by such showing, and adopt it as our own. We also have reviewed the Petition and the supporting evidence to which we are directed as to how Togher and Cooper teach a default quantity and Schott teaches graphical displays. *Id.* We are persuaded by such showing, and adopt it as our own.

Petitioner also has sufficiently shown why it would have been obvious to combine TSE, Togher, Schott and Cooper. For example, and with respect to claim 1, Petitioner argues that it would have been obvious to add Togher's user-modifiable default values to TSE's electronic trading system. Petitioner argues that the combination would have been nothing more than combining prior art elements according to known methods to yield the predictable and desirable result of reducing the time needed to place an order and reducing the number of errors by reducing the number of operator actions (e.g., keystrokes). Pet. 45–46; Ex. 1032 ¶ 115. Petitioner argues that if the claims require retaining a user's last entered quantity to meet the "default quantity" limitation, then Cooper describes this feature. In particular, Petitioner argues that it would have been obvious to modify the combination of TSE and Togher with Cooper by making the simple design choice to retain the user's last-entered quantity. Pet. 47 (citing Ex. 1032 ¶¶ 107–108). Petitioner additionally argues that it would have been obvious to add Schott's teaching of displaying graphical representations of data with the graphical interface teachings of TSE and Togher. Petitioner argues that the combination would have been nothing more than combining prior art elements according to known methods to yield the predictable and desirable result of reducing the time and effort the user needs to expend to understand the displayed data. Pet. 42; Ex. 1032 ¶ 117. Lastly, Petitioner argues, with supporting evidence, that dependent claims 2–15 are obvious over TSE, Togher, Schott, and Cooper. Pet. 50–60.

Notwithstanding Patent Owner's arguments, which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that

claims 1–15 are unpatentable based on the combination of TSE, Togher, Schott, and Cooper for the reasons provided by Petitioner. If a feature has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve a similar device in that field or another, implementing that feature on the similar device is likely obvious. *KSR*, 550 U.S. at 417. For a patent claim that claims a structure known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result. *Id*. at 416. Here, a person of ordinary skill in the art would have recognized that the addition of Togher's user-modifiable default values, for example, to TSE's electronic trading system, would have been nothing more than combining prior art elements according to known methods to yield the predictable and desirable result of reducing the time needed to place an order and reducing the number of errors by reducing the number of operator actions (e.g., keystrokes). Ex. 1032 ¶ 115.

Patent Owner's Contentions

Patent Owner does not dispute that TSE in combination with Togher, Cooper, and Shultz describe all of the elements of claims 1–4 and 8–15, and that the combination would have been obvious. PO Resp. 56–68. Patent Owner contends, however, that the failure of others to make the claimed combination demonstrates the non-obviousness of the invention. *Id*. at 56–64. Patent Owner also presents arguments with respect to claims 5–7. *Id.* at 64–68. We first address Patent Owner's arguments regarding claims 5–7.

Claim 5 depends directly from claim 1 and includes displaying an

order icon at a location that corresponds to the desired price level along the price axis, and that the order icon indicates the user's order at the electronic exchange. Claims 6 and 7 each depend directly from claim 5. For claim 5, Petitioner relies on the description in TSE that after data is entered, a trader submits the order using the "send" function to send the order to the central system. Pet. 51 (citing Ex. 1004, 143). Petitioner explains that the order, along with all other orders, is displayed on the client terminals. *Id.* (citing Ex. 1004, 9–10; Ex. 1032 ¶ 123).

Patent Owner argues that the proper construction of "an order icon . . . indicating the user's order at the electronic exchange," is an icon indicating to the user that the user has an order (distinguishes the traders own orders) at a particular level along the price axis. *Id.* at 64–65 (citing Ex. 2169 ¶¶ 62–66). Patent Owner's arguments are premised on a narrow construction of claim 5. *Id.* at 64–67. As indicated above, in the claim interpretation section of this opinion, we do not adopt Patent Owner's narrow interpretation.

Claim 6 depends from claim 5 and recites "displaying the plurality of bid indicators using a first visual characteristic; displaying the plurality of offer indicators using a second visual characteristic; and displaying the order icon using a third visual characteristic." Petitioner contends that the combination of TSE, Togher, Schott and Cooper render obvious claim 6 "because Schott teaches using different colors and textures for difference data sets, and a POSITA would have been motivated to add these teachings to the trading system described by TSE, Togher and Cooper." Pet. 52–53. Petitioner further contends that a person having ordinary skill in the art would have been motivated to apply Schott's technique of using different

visual characteristics such as color and texture for three different data sets to the bids, offers, and the trader's own orders displayed in an electronic trading system disclosed in TSE and Togher to speed trader recognition of different data sets. *Id*. at 53; Ex. 1032 ¶ 140.

Patent Owner argues that Petitioner relies on the aggregate information to fulfill the offer indicators, bid indicators, and order icon. PO Resp. 67–68. Patent Owner further argues that Petitioner fails to explain how the aggregate quantity that is both the bid/offer indicators, and the order icon, would be displayed with different visual characteristics. *Id.* We disagree. As explained above, the Petition relies on Schott's technique of using different visual characteristics for three different data sets to the bids, offers, and the trader's own orders displayed. Pet. 52–53. Petitioner also provides a motivation for using different visual characteristics for the three different sets. *Id.* It is implicit through Petitioner's showing that Petitioner proposes having three different sets, as opposed to an aggregate number as Patent Owner argues. Accordingly, we are not persuaded by Patent Owner's arguments.

E. Obviousness of Claims 1–15 over Silverman, Togher, Cooper, and Hogan

Petitioner contends that claims 1–15 are unpatentable under 35 U.S.C. § 103 over Silverman, Togher, Cooper, and Hogan. To support its contentions, Petitioner provides explanations as to how the prior art meets each claim limitation. Pet. 60–80. Petitioner also cites the Declaration of Kendyl A. Román for support. *See* Ex. 1032 ¶¶ 163–170.

Silverman describes a matching system for trading instruments in which bids are automatically matched against offers for given trading instruments. Ex. 1010, Abstract. Summary market information is displayed at participant's workstation or keystation at various client sites. *Id.* at 6:50–52. The system will display the best inside price for every instrument traded on the system, and preferably the prices are displayed together with the quantity bid or offered at the specified price so that the trader at the keystation can observe the market activity. *Id.* at 6:57–60.

Silverman describes, in connection with Figure 5, a keystation book located at client sites which maintain copies of the best bids and offers contained in the host book of Figure 4 and uses that information to generate displays at the keystations. *Id.* at 10:3–8. Figure 5, annotated by Petitioner with "price axis" is reproduced below.

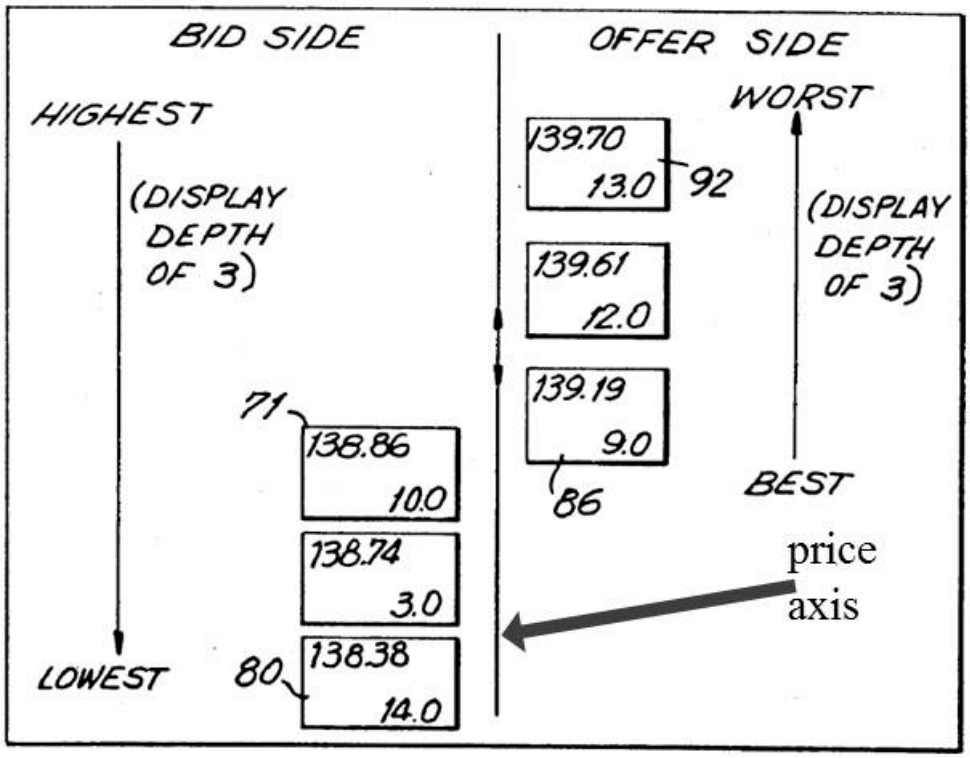


Figure 5 of Silverman, annotated by Petitioner, showing a keystation book

Hogan describes displaying graphical indicators representing underlying quantities. Ex. 1011, 38:4–58, Fig. 17.

Petitioner identifies the differences between the claimed invention and Silverman, explaining that Silverman does not describe a default quantity, or entering data graphically. Pet. 60. Petitioner also addresses the inevitable argument from Patent Owner that Silverman's price axis is not a price axis and submits that it would have been obvious to add labels to the Silverman price axis (Figure 5 labeled above) to help a user determine the scale of the graphed data. Pet. 62; Ex. 1032 ¶ 153. Petitioner also points out that Hogan describes selecting a value by selecting a position along an axis for a value. Pet. 69. Petitioner relies on Togher and Cooper to teach a default quantity (similar to the challenge based on TSE described above) and additionally relies on Hogan to teach entering data graphically. Pet. 60.

We have reviewed the Petition and the supporting evidence to which we are directed as to how Silverman meets all of the claim limitations with the exception of a default quantity and graphical displays. To the extent Silverman's "price axis" is not considered a price axis, Petitioner has shown sufficiently how it nonetheless would have been obvious to add labels to the graph described by Silverman, and further has shown sufficiently that Hogan too teaches selecting a position along an axis for a value. Pet. 60–80. We are persuaded by such showing, and adopt it as our own. We also have reviewed the Petition and the supporting evidence to which we are directed as to how Togher and Cooper teach a default quantity and Hogan teaches graphical displays, selecting a value by selecting a position along an axis for that value,

and entering data graphically. *Id.* We are persuaded by such showing, and adopt it as our own.

Petitioner also has sufficiently shown why it would have been obvious to combine Silverman, Togher, Cooper, and Hogan. For example, and with respect to claim 1, Petitioner argues that it would have been obvious to add Togher's user-modifiable default values and Cooper's teaching of retaining the user's last-entered quantity to Silverman's electronic trading system for similar reasons as it did with respect to the challenge based on TSE. Pet. 65–66; Ex. 1032 ¶¶ 157–158, 165.

Petitioner additionally argues that it would have been obvious to add Hogan's GUI teachings with Silverman, Togher, and Cooper. Petitioner argues that the combination would have been nothing more than combining prior art elements according to known methods to yield the predictable and desirable result of reducing the time and effort the user expends to understand and enter data. Pet. 69–70; Ex. 1032 ¶¶ 168, 169. Lastly, Petitioner argues, with supporting evidence, that dependent claims 2–15 are obvious over Silverman, Togher, Cooper, and Hogan. Pet. 71–80.

Notwithstanding Patent Owner's arguments, which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that claims 1–15 are unpatentable based on the combination of Silverman, Togher, Cooper, and Hogan for the reasons provided by Petitioner. Here, and with respect to claim 1 in particular, a person of ordinary skill in the art would have recognized that the addition of Togher's user-modifiable default values, for example, to Silverman's electronic trading system, would have been nothing more than combining prior art elements according to known

methods to yield the predictable and desirable result of reducing the time needed to place an order and reducing the number of errors by reducing the number of operator actions (e.g., keystrokes). Ex. 1032 ¶ 165. Further, a person of ordinary skill in the art would have recognized that adding Hogan's GUI teachings to the Silverman and Togher combination (e.g., selecting a value by selecting a position along an axis for that value) would have been obvious, as the combination would have been nothing more than combining prior art elements according to known methods to yield the predictable and desirable result of reducing the time and effort the user expends to understand and enter data. Ex. 1032 ¶¶ 168, 169.

Patent Owner's Contentions

Patent Owner argues that Silverman's Figures 4, 5, and 17 show logical models, not a GUI. PO Resp. 68–71. Patent Owner acknowledges that Silverman describes a display and a separate order entry tool. *Id*. at 70–71 (citing Ex. 2169 ¶ 75). As explained above, Silverman describes that the system will display the best inside price for every instrument traded on the system, and preferably the prices are displayed together with the quantity bid or offered at the specified price so that the trader at the keystation can observe the market activity. Ex. 1010, 6:57–60, 15:50–55. Order entry may be accomplished through conventional means, such as a keyboard or a mouse. *Id*. at 14:63–64.

Patent Owner argues, however, that such a conventional display and separate entry tool is not a GUI and that Silverman does not describe implementing its figures as a GUI (arguing specifically that nowhere does

Silverman describe that data would be displayed in the manner shown in Fig. 5). PO Resp. 68–71. Based on a similar line of reasoning, Patent Owner also argues that Mr. Román's testimony cannot be relied upon because Silverman's figures were not implemented as GUIs and Mr. Román's testimony is based on his understanding that Silverman's figures were implemented as GUIs. PO Resp. 74–75 (citing Ex. 2169 ¶¶ 71–89). Patent Owner's arguments are not persuasive.

None of the claims recite a "GUI" or graphical user interface. Arguably, the only claim 1 step that would be in the realm of requiring a GUI, would be the step of "receiving a user input indicating a desired price … the desired price being specified by *selection of one of a plurality of locations* corresponding to price levels along the price axis." But even assuming that the claims require a GUI, Patent Owner's arguments that Silverman *alone* fails to describe a GUI are misplaced. Petitioner does not assert that Silverman anticipates claims 1–15. Rather, the challenge is based on the combination of Silverman, Togher, Cooper, and Hogan. Hogan describes a GUI, and Petitioner relies on Hogan for the receiving a user input indicating a desired price step. Pet. 67–69. Mr. Roman testifies to this as well. Ex. 1032 ¶¶ 154–155, 159–160, 169. Accordingly, Patent Owner's arguments attacking Silverman alone are not persuasive. Lastly, we do not find that Mr. Román's testimony (*see, e.g.*, Ex. 1032 ¶ 166) regarding what was implemented by Reuters as further support for combining Silverman, Togher, and Hogan discredits his other testimony (*see, e.g.*, Ex. 1032 ¶¶ 154–155, 159–160, 169) regarding the obviousness of the *claims* before us. We credit his testimony regarding the obviousness of the claims, and moreover,

give his testimony more weight than that of Patent Owner's witness, Mr. Thomas, because his testimony (*see, e.g.*, Ex. 2169 ¶¶ 80–89), like Patent Owner's arguments is focused narrowly on the teachings of Silverman alone.

We also have considered Patent Owner's argument that a person having ordinary skill in the art at the time of the invention would not have implemented Silverman as a GUI (PO Resp. 71–73), but are not persuaded by such argument. Patent Owner argues that implementing Silverman's figures as trading GUIs would not result in a useful product for a trader because the resulting display would result in a large amount of unused screen space. *Id*. (citing Ex. 2169 ¶¶ 90, 92). Patent Owner's argument is misplaced as the broad claims do not include any orientation limitations or limitations regarding screen space.

We next address Patent Owner's argument that Silverman does not disclose the claimed "price axis." PO Resp. 76–77. In essence, claim 1 requires displaying data (e.g., bid and offer indicators) along a price axis. The claim 1 method further requires receiving a user input indicating a desired price for an order by selecting one of a plurality of locations corresponding to price levels along the price axis. First, Patent Owner's arguments are based on a narrow interpretation of a "price axis" which we disagree with as discussed above in the claim construction section of this opinion. In any event, Petitioner accounts for Patent Owner's narrow interpretation of "price axis." While Petitioner characterizes the modified Silverman Figure 5 shown above as showing a "price axis," Petitioner also relies on Hogan and the knowledge of a person of ordinary skill in the art to explain that displaying indicators along a price axis was known at the time of

the invention. Pet. 61–63, 67–69; Ex. 1032 ¶¶ 153, 155, 160–161. Thus, Patent Owner's arguments regarding Silverman alone (*see, e.g.*, PO Resp. 76–77) are not sufficient to show fault in the Petitioner's reliance on Silverman, Hogan, and the knowledge of a person of ordinary skill in the art for the claimed price axis.

Patent Owner argues that the addition of Hogan to Silverman does not cure Silverman's defects or render the combination obvious. PO Resp. 77–79. In particular, Patent Owner argues that Silverman's figures are not displayed (are not GUIs). As discussed above, this argument is not persuasive. Patent Owner additionally argues that if Silverman's Fig. 5 bars were replaced with Hogan's teaching of bars representing quantity, the result would still not meet the limitation of a price axis. The argument is based on a narrow construction as explained above, and is without merit. In any event, Petitioner accounts for Patent Owner's argument that Silverman does not describe a price axis and explains that it would have been obvious to add labels to the Silverman price axis (Figure 5 labeled above) to help a user determine the scale of the graphed data. Pet. 62; Ex. 1032 ¶ 153. As discussed above, we adopt Petitioner's showing in that regard. Patent Owner, on the other hand, does not address Petitioner's showing that it would have been obvious to add labels to the Silverman price axis to assist a user to determine the scale of the graphed data—a showing we pointed out in our Decision to Institute as well, putting Patent Owner on plenty of notice that such a showing would be an issue for trial. Dec. 28. In summary, we have considered all of Patent Owner's arguments with respect to claim 1, but determine them to be unpersuasive.

Patent Owner presents arguments with respect to claims 5–7. PO Resp. 79–81. Claim 5 depends directly from claim 1 and includes displaying an order icon at a location that corresponds to the desired price level along the price axis, and that the order icon indicates the user's order at the electronic exchange. Claims 6 and 7 each depend directly from claim 5.

Patent Owner argues that Silverman's Figs. 13 and 14 are not a graphical representation (GUI) provided to a user, similar to the arguments Patent Owner made with respect to Silverman's Figs. 4 and 5 above. For similar reasons provided above, we are not persuaded by this argument.

In addition, and for similar reasons discussed above, we do not agree with Patent Owner that claim 5 requires indicating the *specific* user order or indicating to the user that it is his order. *Id*. at 79–81. Patent Owner's arguments in that regard are not commensurate in scope with what is claimed. Patent Owner does not argue for the separate patentability of claims 6 and 7.

Secondary Considerations

In its brief, Patent Owner has a section titled "The Failure of Others to Make the Claimed Combination Demonstrates the Non-obviousness of the Invention." PO Resp. 56–64. That section, however, bears little resemblance to a typical showing of secondary consideration of a failure of others to make *the claimed invention* and does not appear to be particularly relevant to this proceeding. For example, Patent Owner spends several pages (*see, e.g.*, PO Resp. 60–62) discussing U.S. Patent No. 6,772,132 without explaining how that discussion is relevant to the proceeding before us. Patent Owner's arguments as to why a person having ordinary skill in the art would have

viewed TSE (and alternatively Silverman) as wasting screen real-estate and would have rejected its (or Silverman's) teachings is based on whether such teachings would have been commercially viable, which has not been shown to be relevant to the proceeding before us. In summary, we are not persuaded by any of Patent Owner's arguments spanning pages 56–64 of the Patent Owner Response.

F. Patent Owner's Motion to Exclude

Patent Owner moves to exclude Exhibit 1003 (TSE), Mr. Kawashima's deposition (Ex. 1007), and portions of Exhibits 1059 and 1060. PO Mot. to Exclude 1, 4, 6. Exhibit 1003 is the Japanese version of the TSE document. *See, e.g.*, Paper 131, 2. Patent Owner seeks to exclude Exhibit 1003 because it has not been authenticated per rule 901 of the Federal Rules of Evidence (FRE). Patent Owner recognizes that Petitioner relies on Mr. Kawashima's testimony (Ex. 1007) to authenticate TSE, but argues that his testimony is hearsay. PO Mot. to Exclude 2–6. Patent Owner, however, acquiesces that Mr. Kawashima's testimony is not hearsay because he was cross examined. Patent Owner also argues that Mr. Kawashima's testimony raises more doubt than it resolves. *Id.* at 6–7.

Patent Owner's motion with respect to the exclusion of TSE (Exhibit 1003) and Mr. Kawashima's deposition (Exhibit 1007) falls far short of what is required in a motion. The statement of the precise relief requested is lacking. For example, Patent Owner argues that TSE and Mr. Kawashima's deposition should be excluded, but also argues that Mr. Kawashima's deposition falls under the FRE 807 hearsay exception, and, therefore, is admissible. *See, e.g.*, PO Mot. to Exclude 2–6. We understand Patent

Owner's position to be that if we exclude any of Patent Owner's evidence, then we also should exclude Exhibits 1003 and 1007. *Id.* at 6 ("To the extent the Board excludes any of Patent Owner's evidence from district court litigation, which it should not, the Board should likewise exclude the 2005 Kawashima deposition transcript.").

We are not persuaded by Patent Owner's arguments. Patent Owner has not met its burden to show that either Exhibit 1007 or Exhibit 1003 should be excluded from the record. In fact, Patent Owner appears to concede that Mr. Kawashima's testimony is not hearsay because it falls under an exception to the hearsay rule. Nor are we persuaded by Patent Owner's argument that the deposition testimony of Mr. Kawashima (Ex. 1003) raises more doubt than it resolves. PO Mot. to Exclude 6–8. In essence, Patent Owner's arguments go to the weight we should give Mr. Kawashima's testimony, which is not a proper argument for a motion to exclude. For all of these reasons, we are not persuaded that either Exhibit 1003 or 1007 should be excluded from the record and deny that portion of the motion seeking to exclude those exhibits.

Patent Owner also seeks to exclude pages 57–58 of Exhibit 1059 (the cross examination testimony of Mr. Olsen) and pages 248 and 263–269 of Exhibit 1060 (the cross examination testimony of Mr. Thomas). We did not and need not consider the specific pages objected to in Exhibits 1059 and 1060. We have determined that Petitioner has demonstrated, by a preponderance of the evidence, that the challenged claims are unpatentable, without considering the specific objected to pages or the portion of Petitioner's Reply that relies on such evidence and thus dismiss that portion

of the motion seeking to exclude portions of Exhibits 1059 and 1060. Accordingly, we *deny-in-part* and *dismiss-in-part* Patent Owner's Motion to Exclude.

G. Petitioner's Motion to Exclude

Petitioner moves to exclude Exhibits 2300, 2301, 2304–2316, 2318–2324, 2326–2330, 2030, and 2032 in their entirety. Pet. Mot. to Exclude 1. Exhibit 2327 is a portion of a deposition of Thomas Biddulph from a district court case. Patent Owner's witnesses, inventors Mr. Friesen and Mr. Hart reference Exhibit 2327 in their respective declarations (Exs. 2167 and 2181) in support of their testimony regarding an actual reduction to practice of the claimed invention. We find it unnecessary to consider the specific objections to the admissibility of Exhibit 2327, since Patent Owner's arguments regarding an actual reduction to practice of the claimed invention are not persuasive for the reasons provided above, even assuming Exhibit 2327 to be admissible.

Exhibits 2030 and 2032 are a jury verdict and docket entry, respectively, associated with an earlier district court case involving Patent Owner and a third party. Although Patent Owner relies on Exhibit 2030 in its Response, we do not find where it relies on Exhibit 2032. In any event, we understand Patent Owner to rely on at least Exhibit 2030 in support of its arguments that TSE is not prior art. PO Resp. 39, n. 5. Petitioner moves to exclude the exhibits as irrelevant and inadmissible. Pet. Mot. to Exclude 5. We find it unnecessary to consider the specific objections to the admissibility of Exhibits 2030 and 2032, since Patent Owner's arguments that TSE is not prior art are not persuasive for the reasons provided above, even assuming

Exhibits 2030 and 2032 to be admissible.

Exhibit 2301 is a document Patent Owner relies on to support prior conception. Petitioner moves to exclude the document for lack of authenticity. *Id.* at 6. We find it unnecessary to consider the specific objections to the admissibility of Exhibit 2301, since Patent Owner's arguments that it conceived the invention prior to TSE are not persuasive for the reasons provided above, even assuming Exhibit 2301 to be admissible.

Exhibits 2300, 2304–2316, 2318–2324, 2326, 2328, and 2329 are various third-party emails. Petitioner objects to the emails for lack of authenticity and hearsay to which no exception applies. *Id.* Patent Owner relies on the emails in support of its arguments regarding diligence. We find it unnecessary to consider the specific objections to the admissibility of Exhibits 2300, 2304–2316, 2318–2324, 2326, 2328, and 2329, since Patent Owner's arguments regarding diligence are not persuasive for the reasons provided above, even assuming Exhibits 2300, 2304–2316, 2318–2324, 2326, 2328, and 2329 to be admissible.

Accordingly, we *dismiss* Petitioner's Motion to Exclude.

III. CONCLUSION[19]

For all of the above reasons, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–15 of the '056 patent are unpatentable based on the following grounds:

claims 1–15 under 35 U.S.C. § 101 as being patent ineligible;

[19] In making the obviousness conclusions, we recognize that it is the subject matter of each claim, as a whole, that is evaluated, rather than just each

claims 1–15 under 35 U.S.C. § 103 as being unpatentable over TSE, Togher, and Schott; and

claims 1–15 under 35 U.S.C. § 103 as being unpatentable over Silverman, Togher, Cooper, and Hogan.

IV. ORDER

It is

ORDERED that claims 1–15 of the ’056 patent are unpatentable;

FURTHER ORDERED that Patent Owner’s Motion to Exclude Evidence is *denied-in-part* and *dismissed-in-part*;

FURTHER ORDERED that Petitioner’s Motion to Exclude Evidence is *dismissed*; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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individual limitation, separately. 35 U.S.C. § 103.

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