

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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**TD AMERITRADE HOLDING CORPORATION, TD AMERITRADE, INC.,  
AND TD AMERITRADE ONLINE HOLDINGS CORP.**

**PETITIONERS**

**v.**

**TRADING TECHNOLOGIES INTERNATIONAL, INC.  
Patent Owner**

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**Patent No. 7,676,411**

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**PETITION FOR COVERED BUSINESS METHOD REVIEW UNDER 35  
U.S.C. § 321 and § 18 of the LEAHY-SMITH AMERICA INVENTS ACT**

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### Exhibit List

<b>Exh. No.</b>	<b>Description</b>
<b>1001</b>	U.S. Patent No. 7,676,411 to Kemp, II <i>et al.</i> (“’411 patent”)
<b>1002</b>	File History of Application Ser. No. 11/585,907, which became the ’411 patent, as filed and obtained from PAIR (“’411 Patent File History”)
<b>1003</b>	U.S. Patent No. 5,077,665 to Silverman <i>et al.</i> (“Silverman”)
<b>1004</b>	U.S. Patent No. 5,297,031 to Gutterman <i>et al.</i> (“Gutterman”)
<b>1005</b>	U.S. Patent No. 5,375,055 to Togher <i>et al.</i> (“Togher”)
<b>1006</b>	“Futures/Option Purchasing System Trading Terminal Operation Guide,” Tokyo Stock Exchange (“TSE JP”)
<b>1007</b>	Certified Translation of “Futures/Option Purchasing System Trading Terminal Operation Guide” (“TSE”)
<b>1008</b>	Certificate of Translation for “Futures/Option Purchasing System Trading Terminal Operation Guide” (“TSE Certificate”)
<b>1009</b>	Memorandum from James M. Hilmert to eSpeed file regarding direct examination of TSE’s 30(b)(6) witness, dated December 5, 2005 (“Depo. Letter”)
<b>1010</b>	Deposition Transcript of Atsushi Kawashima, <i>Trading Technologies International, Inc., v. eSPEED, Inc.</i> , Case No. 04-cv-5312, United States District Court, Northern District of Illinois, Eastern Division, dated November 21, 2005 (“Depo. Transcript”)
<b>1011</b>	Petition to Make Special Under 37 C.F.R. § 1.102(d) for Ser. No. 09/590,692, filed August 21, 2000 (“Petition to Make Special”)
<b>1012</b>	Request for Reexamination of U.S. Patent No. 6,772,132, Control No. 90/011,250, filed September 22, 2010 (“Reexam Request”)
<b>1013</b>	Order Denying Request for Reexamination of U.S. Patent No. 6,772,132, Control No. 90/011,250, mailed December 14, 2010 (“Order Denying Reexam”)
<b>1014</b>	Alan Cooper, “About Face: The Essentials of User Interface Design,” First Edition, 1995. (“Cooper”)
<b>1015</b>	Ben Shneiderman, “Designing the User Interface: Strategies for

	Effective Human-Computer Interaction,” Third Edition, 1998 (“Shneiderman”)
<b>1016</b>	Microsoft Computer Dictionary, Fifth Edition, 2002, page 150 (“Microsoft Computer Dictionary”)
<b>1017</b>	Robert Deel, “The Strategic Electronic Day Trader,” 2000 (“Deel”)
<b>1018</b>	U.S. Patent No. 5,263,134 to Paal <i>et al.</i> (“Paal”)
<b>1019</b>	Declaration of Kendyl A. Román (“Román Decl.”)
<b>1020</b>	Curriculum Vitae of Kendyl A. Román (“Román CV”)
<b>1021</b>	List of Materials Considered by Kendyl A. Román (“Román List of Materials”)
<b>1022</b>	U.S. Patent No. 6,408,282 to Buist (“Buist”)
<b>1023</b>	Declaration of David Rho (“Rho Decl.”)
<b>1024</b>	Curriculum Vitae of David Rho (“Rho CV”)
<b>1025</b>	List of Materials Considered by David Rho (“Rho List of Materials”)

Petitioners, TD Ameritrade Holding Corporation, TD Ameritrade, Inc., and TD Ameritrade Online Holdings Corp. (“Petitioners” or “TD Ameritrade”) request Covered Business Method Review of all claims of U.S. Patent No. 7,676,411 (“’411 patent”; Exhibit 1001), owned by Trading Technologies International, Inc. (“TTI”).

TD Ameritrade will demonstrate that it is more likely than not that all 28 claims of the ’411 patent are unpatentable. The claims of the ’411 patent are directed to the integration of well-known software graphical user interface concepts into a commodities trading system. Petitioners’ expert, Kendyl Román, who has over 30 years of experience working with software graphical user interfaces, explains the purported novelty of the ’411 patent – moving indicators relative to an axis and single action order entry – were well known and in use before the earliest possible priority date of the ’411 patent.

**I. Mandatory Notices (37 C.F.R. § 42.8(a)(1))**

**A. Real party-in-interest**

The real parties-in-interest are TD Ameritrade Holding Corp., TD Ameritrade Online Holdings Corp., and TD Ameritrade, Inc. TD Ameritrade Holding Corp. is the parent of TD Ameritrade Online Holdings Corp. and TD Ameritrade, Inc. The corporate entity thinkorswim Group, Inc. (a defendant in *TTI v. thinkorswim Group, Inc.*, 1:10-cv-00883 (N.D. Ill.)) no longer exists and was



merged into its parent, TD Ameritrade Online Holdings Corp.

**B. Related Matters**

The '411 patent is involved in the following proceedings that may affect, or be affected by, a decision in this proceeding: *Trading Technologies Int'l, Inc. v. TradeHelm, Inc.*, 1:10-cv-00931 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. Rosenthal Collins Group, LLC*, 1:10-cv-00929 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. Open E Cry, LLC, et al.*, 1:10-cv-00885 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. thinkorswim Group, Inc, et al*, 1:10-cv-00885 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. Tradestation Securities, Inc., et al* 1:10-cv-00884 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. Stellar Trading Systems, Ltd., et al*, 1:10-cv-00882 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. Cunningham Trading Systems, LLC, et al.*, 1:10-cv-00726 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. BGC Partners, Inc*, 1:10-cv-00715 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. CQG, Inc., et al*, 1:10-cv-00718 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. Sungard Data Systems, Inc., et al*, 1:10-cv-00716 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. IBG LLC, et al*, 1:10-cv-00721 (N.D. Ill.); *Trading Technologies Int'l, Inc. v. FuturePath Trading, LLC*, 1:10-cv-00720 (N.D. Ill.).

**C. Lead and back-up counsel**

Pursuant to 37 C.F.R. § 42.8(b)(3) and 42.10(a), Petitioner appoints **Lori A. Gordon** (Reg. No. 50,633) as its lead counsel and **Robert E. Sokohl** (Reg. No.

36,013) as its back-up counsel, both at the address: STERNE, KESSLER, GOLDSTEIN & FOX, 1100 New York Avenue, N.W., Washington, D.C., 20005, phone number (202)772-8997 and facsimile (202)371-2540.

**D. Service Information**

Petitioner consents to electronic service by email at the email addresses:

**lgordon-PTAB@skgf.com** and **rsokohl-PTAB@skgf.com**.

**II. Grounds for Standing (37 C.F.R. § 42.304(a))**

Pursuant to 37 C.F.R. § 42.304(a), TD Ameritrade and the undersigned certify that TD Ameritrade has standing, is not estopped or barred, and that the '411 patent is available for post-grant review.

**A. TD Ameritrade has standing**

TD Ameritrade certifies that it meets the eligibility requirements of 37 C.F.R. § 42.302 because TD Ameritrade, Inc. and TD Ameritrade Holding Corp were sued for infringement of the '411 patent. *TTI v. thinkorswim Group, Inc.*, 1:10-cv-00883 (N.D. Ill.)

**B. TD Ameritrade is not estopped or barred**

TD Ameritrade certifies that it is not estopped or barred from filing this petition. TD Ameritrade has not been a party, or a privy to a party, in any post-grant proceeding of the '411 patent, and has not filed a civil action challenging any claims of the '411 patent

### **C. The '411 Patent is a Covered Business Method**

The '411 patent, titled “Click based trading with intuitive grid display of market depth” is a covered business method patent because is not for a technological invention, but claims a method for trading financial instruments.

#### **1. The '411 patent claims a covered business method.**

A patent that claims a method for performing data processing in the practice, administration or management of a financial product or service is a covered business method patent. 37 C.F.R. § 42.301(a). In promulgating the final rules for CBM Review, the Office explained that that “financial product or service” should be “interpreted broadly,” encompassing patents “claiming activities that are financial in nature, incidental to a financial activity or complementary to a financial activity.” Transitional Program for CBM Patents—Definitions, 77 Fed. Reg. 48734, 48735 (Aug. 14, 2012).

The '411 patent meets this definition. It expressly claims displaying market information relating to and facilitating trading of a commodity including displaying bids and asks in the market and selecting an area on a display to set a price for the trade order and send the trade order to the electronic exchange. ('411 patent, independent claims 1 and 26. ) Likewise, the patent describes a graphical user interface for trading such as that shown in FIGs. 3-5.

**D. The '411 patent is not for a “technological invention”**

The '411 patent is not for a technological invention because it does not solve a technical problem with a technical solution, but instead recites the ordinary application of old and well-understood data display and graphical user interface techniques. A technological invention is determined by considering whether the claimed subject matter as a whole recites a technical 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).

As described in detail herein, the claims of the '411 patent do not recite a technical feature that is novel or unobvious over the prior art, and do not solve a technical problem with a technical solution. Rather, they recite only well-understood, routine, and conventional steps of displaying market information graphically to a trader, who enters buy and sell orders, and sending the trader's orders to the exchange to be executed.

Further, the claims appear to have been crafted to recite software and only general computer components, such as a “dynamic display,” a “display device” and an “input device.” These components are not technologically novel or non-obvious. They are generic and are known technology. Even the specification of the '411 patent acknowledges that the alleged invention requires only a generic “computer or [an] electronic terminal ... able to communicate directly or indirectly

... with the exchange.” (’411 patent, 4:2-4.) Congress did not intend a patent with such basic, well-known technology disclosures to be inoculated from a CBM review:

“[The technological inventions exception] is not meant to exclude patents that use known technology to accomplish a business process or method of conducting business – whether or not that process or method appears to be novel. *The technological invention exception is also not intended to exclude a patent simply because it recites technology.* For example, the recitation of *computer hardware*, communication or computer networks, software, memory, computer-readable storage medium, scanners, *display devices* or databases, specialized machines, such as an ATM or point of sale device, or other known technologies, *does not make a patent a technological invention.* In other words, a patent is not a technological invention because it combines known technology in a new way to perform data processing operations.” 157 Cong. Rec. S1364 (daily ed. March 8, 2011) (Sen. Schumer).

The analysis could stop here, as the “technological invention” exception does not apply when *even one* prong of 37 C.F.R. §42.301(b) is not met. Regardless, the ’411 patent also fails to satisfy the second prong of 37 C.F.R. § 42.301(b) because the claims do not solve a technical problem using a technical

solution.

There is no technical problem here. Instead, the claims of the '411 patent are directed to placing a trade order for a commodity on an electronic exchange. Even the '411 patent admits that at the time of filing least 60 exchanges throughout the world utilized electronic trading systems to trade stocks, bonds, futures and options, and allowed traders to participate in the market. ('411 patent, 11:31-33.) Placing an order on the exchange is not a novel technical problem.

Accordingly, the '411 patent is a CBM patent eligible for review under 37 C.F.R. § 42.301(b).

### **III. Identification of Challenge (37 C.F.R. § 42.304(b))**

#### **A. Statutory grounds for the challenge.**

TD Ameritrade requests review of claims 1-28 on 4 grounds: **GROUND 1:** Claims 1-28 are unpatentable under 35 U.S.C. § 101. **GROUND 2:** Claims 1-10 and 12-28 are unpatentable under 35 U.S.C. § 103 as obvious over Silverman in view of Gutterman and Togher. **GROUND 3:** Claim 11 is unpatentable under 35 U.S.C. § 103 as obvious over Silverman, Gutterman, Togher, and Paal. **GROUND 4:** Claims 1-28 are unpatentable over TSE in view of Togher.

#### **B. Citation of Prior Art**

In support of the grounds of unpatentability cited above, TD Ameritrade cites the following prior art references:

**U.S. Patent No. 5,077,665** to Silverman *et al.* (“Silverman”) issued on December 31, 1991. Silverman qualifies as prior art under 35 U.S.C. § 102(b) because it issued more than one year prior to the earliest possible priority date claimed by the ’411 patent. Silverman is provided as Exhibit 1003.

**U.S. Patent No. 5,297,031** to Gutterman *et al.* (“Gutterman”) issued on March 22, 1994. Gutterman qualifies as prior art under 35 U.S.C. § 102(b) because it issued more than one year prior to the earliest possible priority date claimed by the ’411 patent. Gutterman is provided as Exhibit 1004.

**U.S. Patent No. 5,375,055** to Togher *et al.* (“Togher”) issued on December 20, 1994. Togher qualifies as prior art under 35 U.S.C. § 102(b) because it issued more than one year prior to the earliest possible priority date claimed by the ’411 patent. Togher is provided as Exhibit 1005.

**Futures/ Option Purchasing System Trading Terminal Operation Guide (“TSE”)** “Futures/ Option Purchasing System Trading Terminal Operation Guide,” a Tokyo Stock Exchange publication, is prior art under § 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. (*See* Depo. Letter, p. 2; Depo.

Transcript, pp. 0012-33.)<sup>1</sup> The participants were free to do whatever they wanted with their copies of this publication. (Depo. Letter, p. 2; Depo. Transcript, p. 0015.) Because this reference was published in Japanese, Petitioners also submit TSE, which is a certified translation of this Tokyo Stock Exchange publication. (TSE Translation and TSE Certification) (Exhibit 1007 and 1008.) For the Board's convenience, all citations are to the English-language TSE (Exhibit 1007) but the corresponding pages in the original-language document may be easily found by turning to the same page/Bates number in Exhibit 1006.

**U.S. Patent No. 5,263,134** to Paal *et al.* ("Paal") issued on November 16, 1993. Paal qualifies as prior art under 35 U.S.C. § 102(b) because it issued more than one year prior to the earliest possible priority date claimed by the '304 patent. Paal is provided as Exhibit 1018.

#### **IV. The '411 patent**

##### **A. Level of Ordinary Skill in the Art**

One of ordinary skill in the art at the time of the alleged invention, would have had the equivalent of a Bachelor's degree or higher in computer science and at least 2 years working experience designing graphical user interfaces, and direct

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<sup>1</sup> Deposition Letter is provided as Exhibit 1009. Deposition Transcript is provided as Exhibit 1010.



or indirect experience with trading or related systems. (Roman Dec.<sup>2</sup>, ¶ 56.)

## **B. Claim construction**

Except as set forth herein, the claim terms of the '411 patent carry their ordinary and customary meanings under the broadest reasonable interpretation as would be interpreted by one of ordinary skill in the art.

### **1. “single action”**

The specification provides a definition for this term: “[a]ny action by a user within a short period of time, whether comprising one or more clicks of a mouse button or other input device, is considered a **single action** of the user **for the purposes of the present invention.**” ('411 patent, 4:18-22.)(emphasis added)

### **2. “dynamically displaying”**

Each of claims 1 and 26 recites the term “dynamically displaying”:  
“**dynamically displaying**, via the computing device, a first indicator representing quantity associated with at least one trade order to buy . . . .” The specification does not explicitly define this term. However, the specification does explain that a trader can “add or subtract a preset quantity for the quantities outstanding in the market.” (*Id.* at 10:17-18.) In this case, quantities in the Bid or Ask columns would be updated, but not move. (*See id.* at 10:46-54.) The specification also

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<sup>2</sup> The Declaration of Kendyl Roman is provided as Exhibit 1019.

explains that “[t]he values in the Bid and Ask columns ... are dynamic; that is, they move up and down ... to reflect the market depth for the given commodity.” (*Id.* at 7:66-8:16.) Thus, dynamically displaying a field is changing a characteristic (e.g., updating) and/or location (moving) of a displayed field. (Roman Dec., ¶ 71.)

## V. Grounds of Unpatentability

### A. GROUND 1: Claims 1-28 are unpatentable under 35 U.S.C. § 101.

In *Mayo v. Prometheus*, the Supreme Court explained that abstract ideas are not patentable, and that adding “steps consist[ing] of well-understood, routine, conventional activity . . . [that] add nothing significant” to the abstract idea does not render it patentable. *Mayo Collaborative v. Prometheus Labs.*, 132 S. Ct. 1289, 1293 (2012). Likewise, simply implementing the abstract idea on a computer or limiting it to a field of use is not a “patentable application” of that abstract idea. *Id.* at 1301; *see also Bankcorp Servs., LLC v. Sun Life Assurance Co. of a Can.*, 687 F.3d 1266, 1280 (Fed. Cir. 2012). Once an abstract idea has been identified, the key inquiry for patent eligibility is whether the abstract idea is preempted. In order to determine whether the abstract idea is preempted, the balance of the claim is evaluated to determine whether “additional substantive limitations . . . narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself.” *CLS Bank*, 717 F.3d at 1282 (Fed. Cir. 2013)(en banc) *cert. granted* (citing *Mayo*, 132 S.Ct. at 1300; *Bilski*, 130 S.Ct. 3218, 3231

(2010); *Diamond v. Diehr*, 450 U.S. at 187, 101, S.Ct. 1048 (1981)).

Importantly, claims 1-28 of the '411 patent were rejected during prosecution under 35 U.S.C. § 101. (*See* File History<sup>3</sup>, Office Action, dated October 6, 2008, p. 2.) In response, the Patent Owner amended the independent claim to include “a computer device.” However, *Mayo* made clear that such a recitation is insufficient. *Mayo* at 1301 (“simply implementing a mathematical principle on a physical machine, namely a computer, was not a patentable application of that principle”).

The claims of the '411 patent recite just such abstract idea, namely placing an order based on observed market information. The abstract idea is recited in the independent claims along with well-known and insignificant extra-solution activity. The claims do nothing more than state the abstract idea and “apply it” to a convention computer system. Importantly, the claimed abstract idea is central to the trading of commodities all over the world. Patentee cannot be allowed to preempt this fundamental economic tool. Moreover, abstract ideas “cannot be circumvented by attempting to limit the use ... to a particular technological environment.” *Bilski*, S.Ct 3218, 3230 (2010) (quoting *Diehr*, 450 U. S., at 191–192). Thus, limiting the claims to the field of trading commodities is insufficient to make them patentable.

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<sup>3</sup> The file history of the '411 patent is provided as Exhibit 1002.

The claimed graphical user interface (GUI) is just the mechanism for implementing the abstract idea. The Patentee admits in the background section that “[a]t least 60 exchanges throughout the world utilize electronic trading in varying degrees for stocks, bonds, futures, options and other products.” In other words, merely allowing someone to trade electronically based on data that was available in the market place previously does not rise to the level of patentable subject matter.

Evaluating “the balance of the claim[s],” the claims recite the display of data formatted in a well-known manner using a graphical user interface. The GUI is then used to send a trade to an electronic exchange. In particular, the step of receiving market information for a commodity is merely data gathering, which is insufficient to transform an unpatentable principle into a patentable process. *Parker v. Flook*, 437 U.S. 584, 590 (1978). The next recited steps of displaying a bid display region, displaying an ask display region, and dynamically displaying a first indicator and a second indicator associated with a bid price and ask price is a necessary component to implement the abstract idea. This is also true of the step of displaying an order entry region. Here, the application of making a trade requires that data be presented to the trader regarding prices for bids and asks and an area be provided for input the trade. That’s all that is being done in these displaying steps of claim 1. Claim 1 also has two steps of moving

the first and second indicator based on received data. Again, these steps are merely data gathering steps, which is insufficient to render a claim statutory. Finally, the claim recites selecting a particular area with an input device to select a trade, which is a fundamental abstract idea that cannot be preempted without monopolizing the entire field of electronic trading. In short, this claim recites nothing more than placing a trade order in response to observing market data. Thus, the claimed processes (apart from the abstract idea itself) involve “well-understood, routine, conventional activity previously engaged in by” the trading community. *Mayo*, 132 S.Ct. at 1294. Thus, claim is not eligible under § 101.

Independent claim 26 merely recites a computer program that mirrors the method of claim 1. The question is whether claim 26 offers meaningful limitations “beyond generally linking ‘the use of the [method] to a particular technological environment.’” *CLS Bank*, 717 F.3d at 1291 (quoting *Bilski*, 130 S.Ct. at 3230). The elements of this claim are virtually identical to claim 1. In short, claim 26 is simply the method steps implemented on a computer readable and therefore is also not eligible under § 101. *See CLS Bank*, 717 at 1288 (“discrete claims reciting subject matter only nominally from different statutory classes may warrant similar substantive treatment under § 101 when, in practical effect, they cover the same invention”)

The dependent claims likewise add nothing significant. Claim 2 merely define the bid and ask order entry regions. Claim 3 merely defines the trade as a buy or sell order. Claim 4 merely describes the format of the screen. Claim 5 merely explains how a trade can be performed using the GUI. Claim 6 merely explains whether the order is a buy or sell based on the location of the cursor. Claims 7 and 8 merely define data to be used for the trade. Claim 9 again merely describes the presentation of data to allow a trade to occur. Claim 10 allows the canceling of an order. Claim 11-15 merely relate to the presentation of the data to be used to place an order. Claims 18-25, 27 and 28 merely define the well-known operation of a mouse. Claim 16 merely relates to gathering default data for trading commodities. Claim 17 merely defines an order as including a buy and a sell order for a commodity. As explained in the following sections, each of these are well-understood, routine, conventional extra-solution activity.

**B. GROUND 2: Silverman in view of Gutterman and Togher render claims 1-10 and 12-28 obvious.**

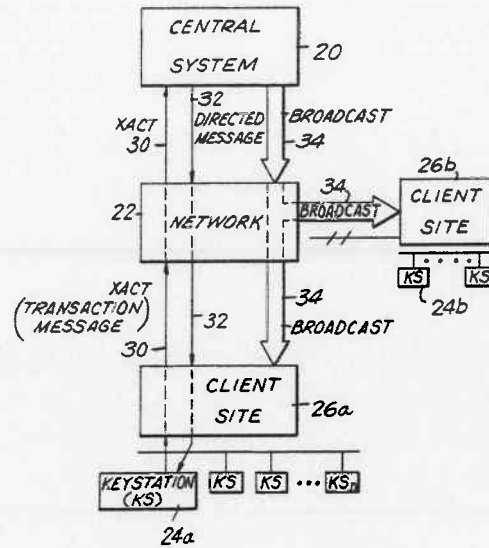
Silverman explicitly discloses each and every limitation of independent claims 1 and 26 except “displaying, via the computing device, an order entry region comprising a plurality of graphical areas for receiving single action commands to set trade order prices and send trade orders, each graphical area corresponding to a different price level along the price axis” and “selecting a

particular graphical area in the order entry region through a single action of the user input device to both set a price for the trade order and send the trade order having a default quantity to the electronic exchange.” However, these limitations are disclosed by the combination of Gutterman and Togher as described below.

### **1. Overview of Silverman, Gutterman, and Togher**

Silverman, like the '411 patent, is directed to a “computerized exchange” for “trading various trading instruments.” (Silverman, 4:57-5:3.) FIG. 1 of Silverman (reproduced below) depicts a functional block diagram of the trading system of Silverman. As illustrated in FIG. 1, Silverman discloses a host or central system 20. The host system executes trades by matching active bids and offers sent from client sites. (*Id.* at 2:65-68; 5:7-11; 5:32-46.) The keystations 24, located at the client sites and connected to the central system via a network, are used to transmit bids and offers for the various trading instruments to the central system. (*Id.* at 2:68-3:14, 5:20-32.) A keystation 24 is utilized by a trader. (Roman Dec., ¶ 72.)

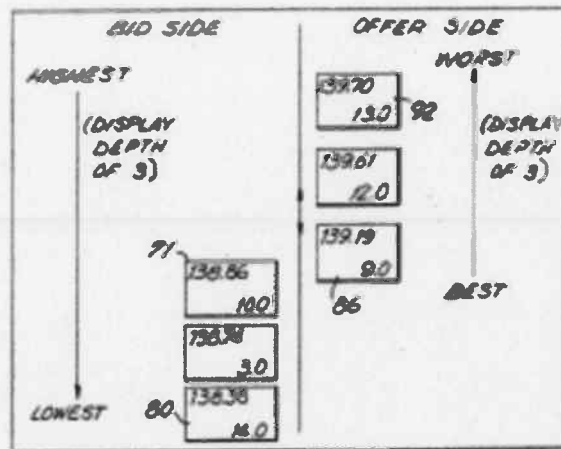
FIG. 1



The host system 20 also maintains a “host book data base comprising all of the active bids and offers in the system by trading instrument.” (*Id.* at 2:66-68.) As explained by Silverman, the host book “contains detailed information from each client site on the particulars of each bid or offer.” (*Id.* at 8:39-40.) Thus, the host book includes the market depth (the current bid and ask prices and quantities in the market) for a commodity. Similarly, each keystation 24 maintains a keystation book for each instrument being actively traded. (*Id.* at 10:15-25, 10:56-61.) The information used in the keystation book is used “to generate displays at the keystations.” (*Id.* at 8:17-18.) FIG. 5 of Silverman (reproduced below with annotations) illustrates a typical keystation book.



**FIG. 5**  
**KEYSTATION BOOK**

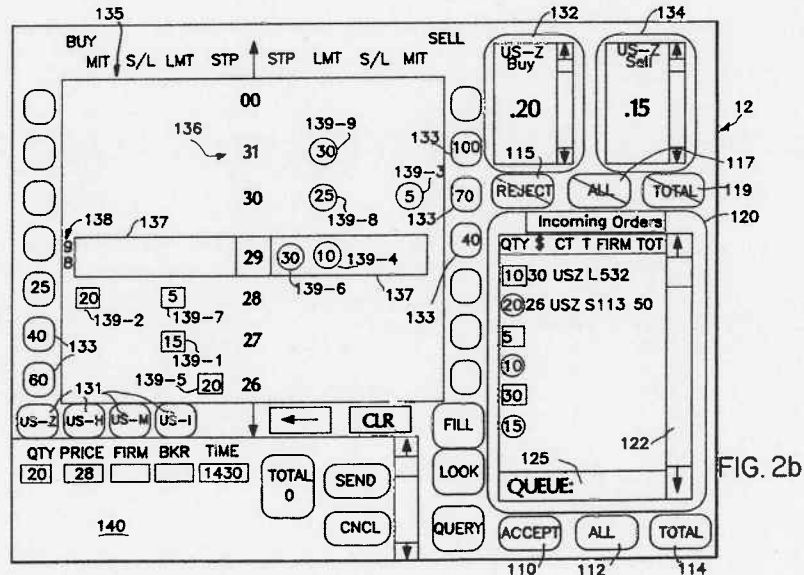


The keystation book is “a subset of the system or central station or host book ....” (*Id.* at 8:13-14.) Keystation books are initially received from and continuously updated by the central system 20. (*Id.* at 3:46-4:10; 5:7-19; 5:37-49 (“real-time updates”); 7:56-8:61; 10:15-25.) The depth of display for a commodity on a keystation is controlled by the host computer that determines the maximum possible display depth for the keystation book and the keystation which may further control the information displayed. (*Id.* at 8:21-35.) A PHOSITA would recognize that if the keystation can display a subset of the display depth, by definition a subset would include the entire market depth for a commodity. (Roman Dec., ¶74.)

In Silverman, a trader places an order “through data entry using a conventional keyboard, pointing device such as a mouse or any other conventional

data entry tool.” (Silverman, 5:25-32.) Silverman does not provide any further details on order entry. Gutterman provides a graphical user interface (“GUI”) displaying order icons representing bids or asks at a specific price level. (Gutterman, FIG. 2b (reproduced below).)

Specifically, Gutterman’s GUI displays a “deck pane” 135. Orders in the “deck pane” 135 are represented by “order icons.” (*Id.* at 12:1-13:46.) “Buy orders [bids] are represented in the deck pane as blue square shapes, and sell orders [asks] are represented as red circles, both of which include indications of the quantities of the orders represented.” (*Id.* at 12:21-24.) Order icons are arranged along a price “column 136,” which is oriented vertically in the depiction of FIG. 2b.



Each order icon in Gutterman is “active.” That is, when the user selects the order icon, the system performs one or more actions – such as populating an

electronic message with an “order’s quantity, price and timestamp.” (*Id.* at 13:30-31.) A trader may immediately transmit this electronic message to another party by pressing another “active” button – the “SEND FILL” button. (*Id.* at 13:29-43 (“In periods of heavy market activity....”) As described in the specification of the ’411 patent, any action by a user within a short period of time, whether comprising one or more clicks of a mouse button or other input device qualifies as a “single action.” Thus, Gutterman’s disclosure of a user making two selections within a short period of time is a single action. (Roman Dec., ¶77.)

As described in further detail below, a PHOSITA would have been motivated to use the “active” order icons of Gutterman in the keystation display to permit a trader to place orders. FIG. A of Mr. Román’s Declaration (reproduced below) edits FIG. 1 of Silverman to add the order icon interface of Gutterman to the keystation display of Silverman.



'411 patent. Togher describes such a system and method that is in the same field as Silverman and Gutterman.

Togher discloses an “electronic brokerage system having a communication network connecting traders dealing in financial instruments.” (Togher, 1:7-10.)

The “electronic brokerage system facilitates the buying and selling of large blocks of foreign currency by traders.” (*Id.* at 5:4-7.) Togher discloses that a trader can establish default trade values, such as a default trade quantity, before he/she begins trading: “[a]s shown in FIG. 4, each trader can call up a ‘Trader Profile’ screen 70 ... to establish or modify his personal default values for normal and maximum trading size ....” (*Id.* at 12:7-10; FIG. 4; *see also id.* at 8:65-9:10, 11:20-25.)

Setting default values allows a trader to “quickly and accurately respond to a new Dealable Bid or offer price by merely activating a Buy button 34 or a Sell button 36, respectively on the screen, assuming that the display is touch sensitive or is provided with a ‘mouse’ or other pointing device.” (*Id.* at 9:1-6; *see also id.* at 11:33-41.)

## **2. Prosecution history relative to Silverman, Gutterman, and Togher**

The '411 patent is a member of a large family of continuation and divisional applications that share a common specification. Silverman and Gutterman were considered, individually, during original prosecution of the application that

matured into the '411 patent. During prosecution in the family and before the Office issued a first action on the merits, the Patent Owner filed a Petition to Make Special identifying Silverman as a material reference. Specifically, Patent Owner argued that Silverman failed to disclose a “*dynamic display of bids and asks*” because the bids and asks are only updated and do not move along an axis. (Petition to Make Special<sup>4</sup>, pp. 4-5.) As set forth above, Petitioners disagree with Patent Owner’s interpretation of the term “dynamic display.” Furthermore, Patent Owner’s argument is moot for this proceeding as Petitioners are presenting the combination of Silverman and Gutterman, and not Silverman alone, as disclosing the “*dynamic display*” limitations of the claims.

Gutterman was presented in a request for *ex parte* reexamination of the '132 patent. (Reexam Request<sup>5</sup>, pp. 41-68.) The central reexamination unit (“CRU”) denied the request alleging that Gutterman did not raise a substantial new question of patentability (“SNQ”) merely because it was cited in IDSs during the original prosecution and a prior *ex parte* reexamination of the '132 patent. (Order Denying Reexam<sup>6</sup>, pp. 10-11. ) No arguments were ever presented distinguishing Gutterman

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<sup>4</sup> Exhibit 1011.

<sup>5</sup> Exhibit 1012.

<sup>6</sup> Exhibit 1013.

from the claims. The CRU's determination was clearly flawed in light of *In re Swanson*, 540 F.3d 1368, 1379-80 (Fed. Cir. 2008) ("Section 303(a) now mandates that 'the existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office.'). Moreover, the CRU's determination is not germane to a covered business method review. First, they are different proceedings. Second, original prosecution and reexamination under 37 C.F.R. § 1.501 *et. seq.* are *ex parte* proceedings – Petitioners did not have the opportunity to participate in either proceeding. Third, and most important, the Petitioner presents new combinations of references and new supporting evidence that were not previously before the Office.

**3. A Person of Ordinary Skill in the Art would have been motivated to combine Silverman, Gutterman, and Togher**

As discussed, Silverman discloses a workstation (keystation) used by a market participant (trader) that receives and displays market information. In response to viewing the displayed market information, the market participant uses a conventional data entry tool to instruct the keystation to transmit an electronic message associated with an order. In Silverman, this electronic message is sent toward the market.

Gutterman also discloses a workstation used by a market participant (broker)

that receives and displays market information in selectable regions of a GUI. The selectable regions of the GUI allow a trader to directly interact (using a conventional data entry tool) with the displayed market information to transmit electronic messages associated with an order. In Gutterman, this message is sent away from the market.

It would have been obvious to a PHOSITA to implement Gutterman's GUI on Silverman's keystation for the purpose of order entry. First, both Silverman and Gutterman are in the same field of endeavor (*i.e.*, trading in financial markets) and both describe workstations that display and manage orders in financial markets, including commodity markets. (Roman Dec., ¶ 83.)

Second, with respect to order entry, the references themselves suggest the combination – Silverman discloses that order entry is “achieved through data entry using a conventional keyboard, pointing device such as a mouse or any other conventional data entry tool.” (Silverman, 5:25-32.) Gutterman describes order entry using a touch-sensitive display, but explains that a PHOSITA would have understood that the “touch-sensitive screen functions can also be implemented by a conventional keyboard, mouse and other standard input devices.” (Gutterman, 7:31-36; 12:41-44; 13:27-46.) Accordingly, the mere substitution of one for another or the combination of familiar elements of one with another according to known methods would have yielded predictable results, and thus been obvious to a



PHOSITA. (Roman Dec., ¶ 84)

Third, Silverman discloses that a trader is motivated to enter orders by observing the displayed market information. Allowing Silverman's trader to directly interact with the displayed market information, as disclosed by Gutterman, simply merges the two known concepts of observing information and entering instructions. (Roman Dec., ¶ 85.)

Fourth, it would have been a menial task for a PHOSITA to implement Gutterman's GUI to send messages toward the market (as opposed to away) to facilitate trading. (Roman Dec., ¶ 86.) After all, Gutterman states: "[i]t will be understood that the organization of order information presented on the screen 12 may be similarly adapted to the needs of stock, bond, stock option and other commodity trading as desired." (Gutterman, 14:48-51.)

Additionally, Silverman and Gutterman visualize the market information that is presented to a market participant in the same manner. FIG. 5 of Silverman and FIG. 2b of Gutterman both illustrate bids and offers that are vertically plotted along a price axis. Based on these visual similarities, modifying Silverman's keystation to include the well-known features of Gutterman's GUI would have yielded predictable results. (Roman Dec., ¶ 87.)

It also would have been obvious to a PHOSITA to use Togher's single-action order entry "to both set a price for the trade order and send the trade order

having a default quantity to the electronic exchange.” First, the references themselves suggest the combination. Gutterman “allows the broker to manage . . . orders more efficiently and to handle order acceptances, fill reports and cancel confirmations more effectively.” (Gutterman, 6:51-55.) Using Togher’s default values allows a trader to “quickly and accurately respond to a new Dealable Bid or offer price by merely activating a Buy button 34 or a Sell button 36, respectively on the screen, assuming that the display is touch sensitive or is provided with a ‘mouse’ or other pointing device.” (Togher, 9:1-6; *see also id.* at 11:33-41.) Increasing efficiency, speed, and accuracy are common themes running throughout Gutterman and Togher, and provide explicit suggestion and motivation for a PHOSITA to combine their teachings. (Roman Dec., ¶ 88.)

Additionally, 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). (Roman Dec., ¶ 89.; *see also* Shneiderman<sup>7</sup> at 82-83 (desirable to reduce number of operator actions such as keystrokes, undesirable to force operator to type in same information twice).) By definition, defaults are standard or preset values that

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<sup>7</sup> Exhibit 1015. All citations are to the book’s actual page numbers.

allow a program to function without the user inputting that value. (Microsoft Computer Dictionary<sup>8</sup>, p. 150.) And at the time of the alleged invention, it was a well-known design practice to use default values to improve the user's experience and reduce errors. (Roman Dec., ¶ 89.; *see also* Cooper<sup>9</sup>, pp. 142-43 )(instead of offering users a blank slate, provide the values and settings the user will probably need).

For at least these reasons, a PHOSITA would have been motivated to incorporate the default values of Togher into the combined device of Silverman and Gutterman to achieve the predictable results of reducing the time needed to place an order and reducing errors. (Roman Dec., ¶ 90.) This is especially true in a user interface for an electronic trading system, where speed may be of the essence. (Roman Dec., ¶ 90.; *see also* Deel<sup>10</sup>, p. 31.)(traders do not want cumbersome system that takes too long to enter the trade.)

Further, Togher's entire background section is devoted to describing Silverman's electronic exchange. (Togher, 1:16-2:11.) Togher's endorsement of Silverman's electronic exchange is an explicit suggestion to combine these

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<sup>8</sup> Exhibit 1016.

<sup>9</sup> Exhibit 1014. All citations are to the book's actual page numbers.

<sup>10</sup> Exhibit 1017. All citations are to the book's actual page numbers.

teachings. (Roman Dec., ¶ 91.)

**4. The combination of Silverman, Gutterman and Togher renders independent claims 1 and 26 obvious.**

**a) The combination of Silverman, Gutterman and Togher discloses the preamble of claims 1 and 26<sup>11</sup>**

The combination of Silverman, Gutterman, and Togher discloses a “*method of displaying market information relating to and facilitating trading of a commodity being traded on an electronic exchange*” as recited in the preamble of claim 1. Silverman discloses a “computerized exchange” for “trading various trading instruments, such as different foreign exchange currencies.” (Silverman, 4:57-61.) Because a commodity includes anything that can be traded with quantities and/or prices, Silverman’s “trading instruments” are commodities.

Each keystation 24 in Silverman maintains a keystation book for each instrument being actively traded. (*Id.* at 10:15-25, 10:56-61.) The information used in the keystation book is used “to generate displays at the keystations.” (*Id.* at 8:17-18.) The information in the keystation book is “*related to trading a commodity.*” The keystation book is “a subset of the system or central station or host book ....” (*Id.* at 8:13-14.) The “host book data base compris[es] all of the active bids and offers in the system by trading instrument” (*id.* at 2:66-67) and, as explained by

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<sup>11</sup> Petitioners do not acquiesce that the preambles are limiting.

Silverman, the host book “*contains detailed* information from each client site on the particulars of each bid or offer.” (*Id.* at 8:39-40.)(emphasis added) The market information of Silverman further “*facilitate[es] trading of a commodity*”:

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. By observing the market activity, the trader can decide whether to enter a bid, or enter an offer into the market in an effort to complete a matching transaction.

(*Id.* at 5:16-22.)

Similarly, Gutterman discloses a workstation “for managing orders in a market for trading commodities, securities, securities options, futures contracts and futures options.” (Gutterman, Abstract.) The GUI of Gutterman displays information related to “*trading of a commodity*” such as price, type of order, and quantity. For example, Gutterman displays a “deck pane” 135 having one or more “order icons” representing orders. (*Id.* at 12:1-13:46.) The order icons are displayed “in positions that are determined by the types and **prices of the orders.**” (*Id.* at 12:28-29.)(emphasis added) As highlighted in FIG. 2b of Gutterman, the type of each order (e.g., market-if-touched (MIT), limit, stop, stop/limit) is determined based on the placement of the order icon on the screen. (*See, e.g., Id.* at 12:25-41.) Additionally, “[b]uy orders [bids] are represented in the deck pane as blue square shapes, and sell orders [asks] are represented as red circles, both of

which include indications of the **quantities** of the orders represented.” (*Id.* at 12:21-24.)(emphasis added) The GUI of Gutterman also facilitates trading by allowing “the broker to manage . . . orders more efficiently and to handle order acceptances, fill reports and cancel confirmations more effectively.” (*Id.* at 6:51-55.)

When the GUI of Gutterman is utilized to display the active bids and offers of the user keystation of Silverman, the combined GUI of Gutterman and Silverman “*display[s] market information relating to and facilitating trading of a commodity being traded on an electronic exchange.*”

Silverman, Gutterman and Togher each utilize software in their systems and thus would include a “*computer readable medium having program code recorded thereon.*” (Roman Dec., ¶ 145.) For example, Silverman describes a “computerized exchange.” (Silverman, 4:68.) The user workstation of Gutterman is designed using “ACTION! software development tool kit.” (Gutterman, 9:32-33; 10:10; 10:25-26.) Togher also discloses a “computerized system” that is an “electronic brokerage system having a communication network connecting traders dealing in financial instruments.” (Togher, 1:7-10.)

**b) The combination of Silverman, Gutterman, and Togher discloses the “receiving market information” limitation [1A], [26A]**

The user’s keystation in Silverman receives “*market information for a*

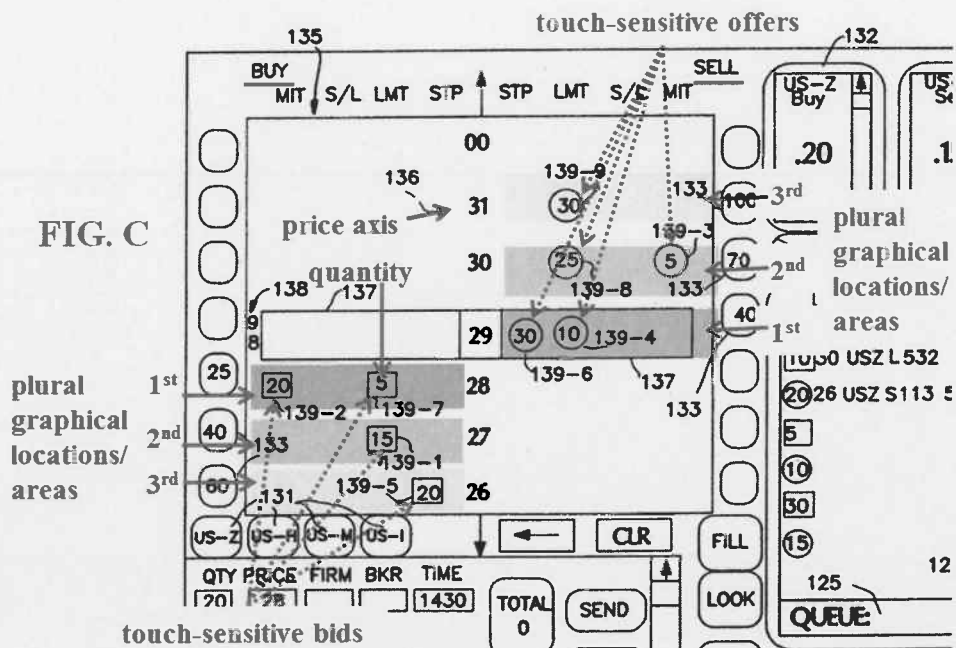
*commodity from an electronic exchange:*” “The content of each of the keystation books ... is updatable by transaction update broadcast messages received from the host computer through the network.” (Silverman, 3:14-18.) Broadcast messages include “bid update message[s]” (*Id.* at 6:57-61.) and offer update messages. (*Id.* at 7:2-8.) FIGs. 1-3 and 6 of Silverman depict this distribution of market information to the keystations by the central system 20.

The exchange of Silverman has “*an inside market with a current highest bid price and a current lowest ask price*”: “Preferably in the system of the present invention, **at all times** the system will display the **best inside price** for every instrument traded on the system. The best inside price is preferably defined to be the **highest value bid** and the **lowest value offer** in the system. 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.” (Silverman, 5:12-19.)(emphasis added)

- c) **The combination of Silverman, Gutterman, and Togher discloses the “displaying, via the computing device, a bid display region bid” limitation [1B], [26B] and the “displaying, via the computing device, an ask display region” limitation [1C], [26C]**

As illustrated in FIG. 5, the keystation book of Silverman is divided into a bid side [bid display region] and an offer side [ask display region]. Like Silverman, the GUI of Gutterman “is organized into a buy side [bid display region]

and a sell side [ask display region].” (Gutterman, 12:2-3; FIG. 2b) FIG. B of the Román Declaration (reproduced below) illustrates the combined GUI of Silverman and Gutterman. As highlighted by FIG. B, the GUI of Silverman and Gutterman discloses “displaying, via the computing device, a bid display region” and “displaying, via the computing device, an ask display region.”



**FIGURE B: ROMÁN DECLARATION**

Both the “bid display region” and the “ask display region” of the GUI of Silverman and Gutterman comprise “a plurality of graphical locations, each graphical location [in the bid/ask display region] corresponding to a different price level of the plurality of price levels along the price axis.” The GUI of Gutterman “is organized into a buy side and a sell side and comprises a dividingly positioned column 136 of price ticks, each of which may indicate 1/32 of a dollar



(as shown) or another amount as appropriate to the commodity or instrument being traded.” (Gutterman, 12:1-6.) The price column 136 of Gutterman is a “*price axis*” having a “*plurality of price levels*” (e.g., 1/32 of a dollar). The order icons are displayed “in positions that are determined by the types and **prices of the orders.**” (Gutterman, 12:27-29.)(emphasis added)

Under the broadest reasonable construction, a “graphical location” is merely a place on the graphical user interface (GUI). As highlighted above in FIG. B of the Román Declaration, the GUI of Gutterman has multiple “*graphical locations*” containing one or more order icons that “*correspond[] to a different price level of the plurality of price levels along the price axis.*”

**d) The combination of Silverman, Gutterman and Togher discloses the “dynamically displaying ... a first indicator” limitation [1D], [26D] and the “dynamically displaying ... a second indicator” limitation [1F], [26F]**

As described above, the GUI of Silverman and Gutterman displays “*a first indicator representing quantity associated with at least one trade order to buy the commodity*” and “*a second indicator representing quantity associated with at least one trade order to sell the commodity*”: “Buy orders [bids] are represented in the deck pane as blue square shapes, and sell orders [asks] are represented as red circles, **both of which include indications of the quantities of the orders represented.**” (Gutterman, 12:21-24.)(emphasis added)

In Gutterman, a market bar “is positioned at the current trade price of the commodity in response to information communicated to the workstation 10 by the exchange’s price reporting system.” (*Id.* at 12:7-12.) It would have been obvious to a person of skill in the art to position the market bar of Gutterman at the inside market of Silverman. For example, Silverman explains that best inside price (inside market) is preferably displayed together with the quantity bid or offered at the specified price “so that the trader at the workstation can observe the market activity” and “decide whether to enter a bid, or enter an offer into the market.” (Silverman, 5:16-22.) FIG. B of the Román Declaration depicts the use of a market bar to highlight the inside market. As highlighted in FIG. B, the GUI displays “*a first indicator ... to buy the commodity at the current highest bid price*” and “*a second indicator ... to sell the commodity at the current lowest ask price.*” As discussed above, and shown in FIG. B, the “*first indicator*” is “*in a first graphical location of the plurality of graphical locations in the bid display region*” and the “*second indicator*” is “*in a first graphical location of the plurality of graphical locations in the ask display region.*”

Both the “*first graphical location in the bid display region*” and the “*first graphical location in the ask display region*” of Silverman and Gutterman’s GUI “*correspond[] to a price level associated with the current lowest ask price*”: The order icons correspond to a price of the static display of prices [column 136]. In

the example of FIG. B of the Román Declaration above, “icons 139-1 and 139-7 represent limit buy orders for 15 [bid quantity] at a price of 98 and 27/32 and 5 [bid quantity] at 98 and 28/32, respectively; icon 139-2 represents a M.I.T. buy order for 20 at 98 and 28/32; icon 139-3 represents a M.I.T. sell order for 5 [ask quantity] at 98 and 30/32; icons 139-4, 139-8 and 139-9 represent limit sell orders for 10 [ask quantity] at 98 and 29/32 ....” (Gutterman, 12:29-41.)

The display of bids and asks of in the combination GUI of Silverman and Gutterman is “*dynamic*.” The bids and offers in Silverman are updated continuously.<sup>12</sup> For example, Silverman describes that the “content of each of the keystation books ... is updatable by transaction update broadcast messages received from the host computer through the network.” (Silverman, 3:14-18.)

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<sup>12</sup> During prosecution of the '132 patent, the Patent Owner acknowledged that “the Silverman et al. references show a plurality of bids and asks for a given traded commodity” that are displayed dynamically “in the sense that the bids and offers are updated.” (Petition to Make Special, pp. 4-5.) Patent Owner, however, alleged that Silverman’s “listings of bids and asks [do not] actually *move* along any axis,” which is required to satisfy the “dynamically displaying” limitation. (*Id.*) As described herein, Gutterman discloses the movement of bids/asks along a price axis.

Broadcast messages include “bid update message[s]” (*id.* at 6:58-60) and offer update messages. (*Id.* at 7:2-8.) Illustrating an example transaction where a trader submits a new bid to the central system, Silverman discloses:

[A] bid update message is broadcast by the central station to all keystations in the system . . . . This broadcast message preferably occurs if this new bid was the **new best bid** in the system, or was an **additional quantity** being bid at the best price in the system. Thus, if this new bid is at the highest price or better or higher, then it will result in a bid update broadcast message going out throughout the system.

(*Id.* at 6:57-67.) (emphasis added) (reference numbers omitted) “[T]he same procedure is followed with respect to entry of an offer.” (*Id.* at 7:2-8.) Gutterman discloses that order icons are added to display. (Gutterman, 10:65-11:3.) Thus, in the combination GUI of Silverman and Gutterman, a new order icon can be added when a broadcast bid update message or a broadcast offer update message is received. (Roman Dec., ¶108.)

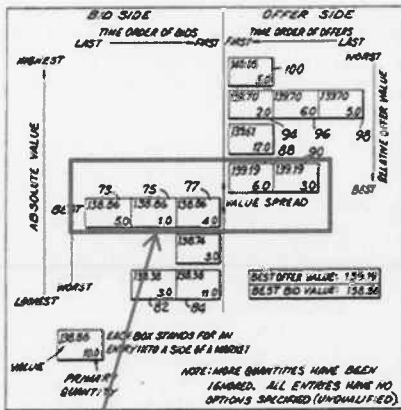
**e) The combination of Silverman, Gutterman, and Togher discloses the “moving the first and second indicators” limitations [1E], [26E], [1G], [26G]**

In the GUI of Silverman and Gutterman, “*upon receipt of market information comprising a new highest bid [lowest ask] price,*” “*the first indicator*” is moved “*relative to the price axis to a second graphical location of the plurality of graphical locations in the bid [ask] display region.*” The content of each of the

keystation books of Silverman “is updatable by transaction update broadcast messages received from the host computer through the network.” (Silverman, 3:14-18.) Furthermore, in Silverman, “**at all times** the system will display the **best inside price** for every instrument traded on the system. The best inside price is preferably defined to be the **highest value bid** and the **lowest value offer** in the system. 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 5:12-19.)(emphasis added) Therefore, the market information received includes “highest bid price” and “lowest ask price.”

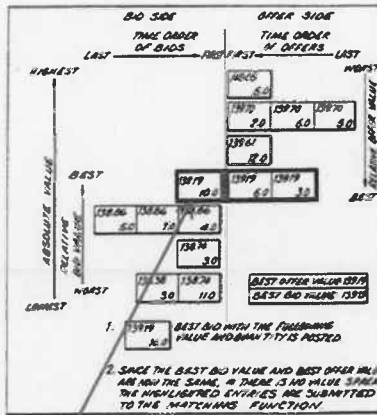
FIGs. 4 and 14-18 of Silverman illustrate how bid and offer indicators move relative to each another and to the price axis as new orders (bids and offers) are entered. (*Id.* at 14:50-15:31.) Figure C of Mr. Román’s Declaration (reproduced below) annotates FIGs. 4, 17, and 18 of Silverman to illustrate the mapping of the limitations of claims 1 and 26 to Silverman. In this example, FIG. 4 of Silverman depicts the state of the market a new bid is entered that causes a trade to be executed (Silverman, 15:50-55); FIG. 17 of Silverman depicts a new bid at 139.19 entering the market (*id.* at 15:40-43); and FIG. 18 of Silverman depicts the state of the market after the trade has been executed. (*Id.* at 15:55-56). As shown, the trade that is executed in response to the new bid at 139.19 entering the market causes the inside market to shift up in the vertical direction relative to the price axis.

FIG 4  
CENTRAL STATION BOOK



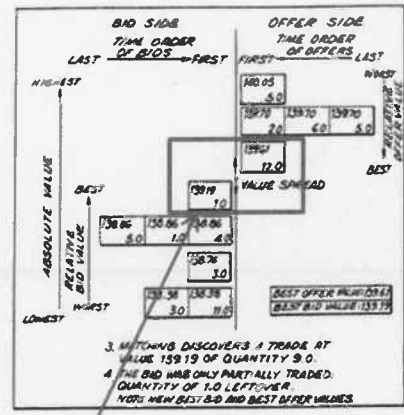
inside market pre-trade  
best bid: 138.86  
best ask: 139.19

FIG. 17



new bid at 139.19 enters

FIG. 18



inside market post-trade  
best bid: 139.19  
best ask: 139.61

### FIGURE C: ROMÁN DECLARATION

In Gutterman, a market bar “is positioned at the current trade price of the commodity in response to information communicated to the workstation 10 by the exchange’s price reporting system.” (Gutterman, 12:7-12.) It would have been obvious to a PHOSITA to position the market bar of Gutterman at the inside market of Silverman. For example, Silverman explains that best inside price (inside market) is preferably displayed together with the quantity bid or offered at the specified price “so that the trader at the keystation can observe the market activity” and “determine whether to enter a bid, or enter an offer into the market.” (Silverman, 5:16-22.)

“The market bar 137 moves up and down along column 136 [price axis] in

response to changes in the market price.” (Gutterman, 12:15-17.) Thus, when the market bar of Gutterman is used with the inside market of Silverman “*the first indicator*” [buy order icon associated with the highest bid price] is moved “*to a second graphical location of the plurality of graphical locations in the bid display region*” and this move is “*relative to the price axis.*” (Roman Dec., ¶112.)

Similarly, “*the second indicator* [sell order icon associated with the lowest ask price] is moved “*to a second graphical location of the plurality of graphical locations in the ask display region*” and this move is “*relative to the price axis.*” (Roman Dec., ¶112.)

The “*second graphical location*” for the first indicator corresponds “*to a price level of the plurality of price levels associated with the new highest bid price*” and the “*second graphical location*” for the second indicator corresponds “*to a price level of the plurality of price levels associated with the new lowest ask price*”: As described above, the order icons correspond to a price of the static display of prices [column 136]. (See, e.g., Gutterman, 12:29-41.) Because the inside market values change, “*the second graphical location is different from the first graphical location in the bid [ask] display region.*” (Roman Dec., ¶113.)

**f) The combination of Silverman, Gutterman, and Togher discloses the “displaying ... an order entry region” limitation [1H], [26H]**

The “order icons” displayed in the GUI of Silverman and Gutterman include

“*order entry regions ... comprising a plurality of graphical areas for receiving single action commands.*” As explained by Gutterman, “[b]uy orders [bids] are represented in the deck pane as blue square shapes, and sell orders [asks] are represented as red circles, both of which include indications of the quantities of the orders represented.” (Gutterman, 12:21-24.) A user can select an order “by touching the corresponding order icon.” (*Id.* at 13:27-29.) Gutterman’s selectable (*e.g.*, touch-sensitive) display corresponds to an “*order entry region.*”

Additionally, “the various keys and touch-sensitive screen functions can also be implemented by a conventional keyboard, **mouse** and other standard input devices.” (*Id.* at 7:31-36.) (emphasis added) Thus, the order entry region includes “*graphical areas for receiving single action commands*”<sup>13</sup> such as the selection by touch screen and/or a click or double-click of a mouse.

Each of the “*plurality of graphical areas*” of the “*order entry region*” of Gutterman corresponds “*to a different price level along the price axis.*” Order icons are arranged along a price “column 136” as illustrated in FIG. 2B of Gutterman. Additionally, the order icons correspond to a price of the static display of prices [column 136]. (*See, e.g., id.* at 12:29-41.)

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<sup>13</sup> The term “single action” is any action by a user within a short period of time.



Silverman discloses that traders enter orders using conventional input devices based on observing the displayed market information. (Silverman, 5:20-32, 12:64-13:4.) Further, each order icon in Gutterman is “active.” That is, when the user selects the order icon, the system performs one or more actions – such as populating an electronic message with an “order’s quantity, price and time stamp.” (Gutterman, 13:29-31.) As described in further detail below, a PHOSITA would have been motivated to use the “active” order icons of Gutterman in the keystation display of Silverman to permit a trader to send orders.

However, the combination of Silverman and Gutterman does not explicitly disclose a single action “*to both set a price for the trade order and send the trade order having a default quantity to the electronic exchange.*” However, Togher discloses this limitation.

Togher discloses setting default values for trade orders: “[a]s shown in FIG. 4, each trader can call up a ‘Trader Profile’ screen 70 ... to establish or modify his personal default values for normal and maximum trading size ....” (Togher, 12:7-15, FIG. 4; *see also* 8:65-9:10, 11:20-25.) Setting default values allows a trader to “quickly and accurately respond to a new Dealable Bid or offer price by merely activating a Buy button 34 or a Sell button 36, respectively on the screen, assuming that the display is touch sensitive or is provided with a ‘mouse’ or other pointing device.” (*Id.* at 9:1-6; *see also id.* at 11:33-41.) A PHOSITA would have

understood that a trader using Togher's GUI could select a particular location of Togher's GUI (e.g., "Buy" or "Sell" button) via a single action of a conventional user input device (e.g., touch-sensitive display, mouse) to establish a trade price and type of order (e.g., the "new Dealable Bid or offer price"), set default values (e.g., quantity), and send the order to market.

**g) The combination of Silverman, Gutterman, and Togher discloses the "selecting a particular graphical area in the order entry region" limitation [1I], [26I]**

As described above, in the GUI of Silverman and Gutterman, a user can "select[] a particular graphical area in the order entry region" "by touching the corresponding order icon." (Gutterman, 13:27-29.) The touching of the corresponding order icon is "a single action of the user input device." When a mouse is utilized, the single action of the user input device in this embodiment of Gutterman would be a single or double mouse click. (Roman Dec., ¶119.)

Gutterman discloses that selecting (e.g., touching) an order icon sets "the order's quantity, price, and timestamp." (Gutterman, 13:29-31.) However, Gutterman does not disclose "a trade order having a default quantity." Togher discloses the use of default quantities: "As shown in FIG. 4, each trader can call up a 'Trader Profile' screen 70 ... to establish or modify his personal default values for normal and maximum trading size ...." (Togher, 12:7-15, FIG. 4 (reproduced in-part below); see also 8:65-9:10, 11:20-25.) The "Trader Profile" allows a trader

to establish the default quantity value labeled **30** and **32** in FIG. 2 and **49** and **50** of FIG. 3 of Togher.

**Fig. 4**

Dealable Price Display (select one)	80	Regular Priority	Best Dealable
Currency Trading Pair	xxx/xxx	72	82
Normal Trade Size	nnn	74	
Maximum Trade Size	nnn	76	78

Thus, when an order icon is selected on the GUI, a trade order is sent to the electronic exchange *“having a default quantity.”*

**5. The combination of Silverman, Gutterman, and Togher renders claim 2 obvious.**

In the combination GUI of Silverman and Gutterman, *“the order entry region comprises: a bid order entry region comprising a plurality of graphical areas for receiving single action commands to send trade orders to buy”* and *“an ask order entry region comprising a plurality of graphical areas for receiving single action commands to send trade orders to sell.”* As explained above, “order icons” of Gutterman are displayed in an *“order entry region comprising a plurality of locations for receiving commands to send trade orders.”* As explained by Gutterman, “[b]uy orders [bids] are represented in the deck pane as blue square shapes, and sell orders [asks] are represented as red circles, both of which include indications of the quantities of the orders represented.” (Gutterman, 12:21-24.) Gutterman’s selectable display corresponds to an *“order entry region.”*

As illustrated in FIG. 5, the keystation book of Silverman is divided into a bid side [bid display region] and an offer side [ask display region]. Like Silverman, the GUI of Gutterman “is organized into a buy side [bid display region] and a sell side [ask display region].” (*Id.* at 12:1-6.) The order icons are displayed “in positions that are determined **by the types and prices of the orders.**” (*Id.* at 12:27-29.) (emphasis added) Thus, the “*order entry region*” is also split into “*a bid order entry region*” and an “*ask order entry region.*”

Each order icon in Gutterman is “active.” A user can select an order “by touching the corresponding order icon.” (*Id.* at 13:27-29.) Additionally, “the various keys and touch-sensitive screen functions can also be implemented by a conventional keyboard, **mouse** and other standard input devices.” (*Id.* at 7:31-36.) (emphasis added) Thus, the both the “*bid order entry region*” and the “*ask order entry region*” include “*a plurality of graphical locations for receiving single action commands*” such as the selection by touch screen and/or a click or double-click of a mouse.

Each of the “*plurality of graphical areas*” of Gutterman corresponds “*to a different price level of the plurality of price levels along the price axis.*” Order icons are arranged along a price “column 136” as illustrated in Gutterman. Additionally, the order icons correspond to a price of the static display of prices [column 136]. (*See, e.g., id.* at 12:29-41.)

**6. The combination of Silverman, Gutterman, and Togher renders claim 3 obvious.**

The combination of Silverman, Gutterman and Togher discloses “*wherein the single action further sets whether the trade order is an order to buy or sell the commodity.*” As described above, orders in the GUI of Silverman and Gutterman are represented by “order icons.” (*Id.* at 12:1-13:46.) “Buy orders [bids] are represented in the deck pane as blue square shapes, and sell orders [asks] are represented as red circles, both of which include indications of the quantities of the orders represented.” (*Id.* at 12:21-24.) In Gutterman, “each order icon 139 is advantageously a touch-sensitive area.” (*Id.* at 12:41-44.) The user “selects the order by touching the corresponding [blue square or red circle] order icon in the deck pane 135” in a corresponding buy or sell display region. (*Id.* at 13:27-29.) That is, if the position of the pointer of the user input device [the user touching the touch screen] is the blue square [bid order entry region], the order is a buy order; and if the position of the pointer of the user input device [the user touching the touch screen] is the red square [ask order entry region], the order is a sell order.

**7. The combination of Silverman, Gutterman, and Togher renders claim 4 obvious.**

In the GUI of Silverman and Gutterman, “*the bid order entry region overlaps with a bid display region and the ask order entry region overlaps with an ask display region.*” As discussed above, the order icons of Gutterman are placed

in a corresponding a bid display region or a sell display region. Thus, the bid order entry region (bid order icon) overlaps with the bid display region and the ask order entry region (ask order icon) overlaps with the ask display region. Additionally, a PHOSITA would have understood that a defining characteristic of a touch-sensitive display used in Gutterman is that the display region and the entry (input) region overlap. (Roman Dec., ¶129.)

**8. The combination of Silverman, Gutterman, and Togher render claim 5 obvious.**

The “*the overlapping of the bid [ask] order entry region with the bid [ask] display region*” in the GUI of Silverman and Gutterman permits the trader “*to send trade orders to buy [sell] the commodity by positioning a cursor over the first indicator and selecting a graphical area corresponding to the current highest bid [lowest ask] price*”: In Gutterman, each order icon is a selectable area. (Gutterman, 12:42-43.) The user “selects the order by touching the corresponding [blue square or red circle] order icon in the deck pane 135” in a corresponding buy or sell display region. (*Id.* at 13:27-29.) Gutterman further discloses that “It will be understood by those of ordinary skill in the art ... that the various keys and touch-sensitive screen functions can also be implemented by a conventional keyboard, **mouse** and other standard input devices.” (*Id.* at 7:31-36.) (emphasis added) It was well-known prior to the earliest possible priority date of the '411 patent that a

“cursor is the visible representation on the screen of the mouse’s position.”

(Cooper, p. 208.) It was further well-known that a “user moves the mouse until its corresponding on-screen cursor is pointing to, or placed over, the desired object.”

(*Id.* at 203.)

**9. The combination of Silverman, Gutterman, and Togher render claim 6 obvious.**

The combination of Silverman, Gutterman, and Togher discloses that “*the trade order is an order to buy [sell] the commodity if a position of a cursor at a time of the single action is within a bid [ask] order entry region.*” In Gutterman, the user “selects the order by touching the corresponding [blue square or red circle] order icon in the deck pane 135” in a corresponding buy or sell display region. (Gutterman, 13:27-29.) Therefore, if the position of the pointer of the cursor is the blue square [bid order entry region], the order is a buy order; and if the position of the cursor is the red square [ask order entry region], the order is a sell order.

(Roman Dec., ¶ 131.)

**10. The combination of Silverman, Gutterman, and Togher render claims 7 and 8 obvious.**

As discussed above relative to claim limitations [1I] and [26I], Togher discloses a “*trade order having a default quantity*” (claim 7). A PHOSITA would have understood that the default value could have been applied to a single order, *e.g.*, by activating the “Buy” or “Sell” button one time. (Roman Dec., ¶132.)

Therefore, Togher further discloses “*wherein the default quantity is designated to be used for a single trade order.*”

A PHOSITA would have understood that Togher’s GUI allowed a user to place a plurality of trades. The “*default quantity*” of Togher can also be repeatedly used when a trader is placing a trade order – that is, for a plurality of serial trade orders. (Roman Dec., ¶133.) Indeed, the purpose of default value is to provide a value when a specific condition or conditions occurs. (Roman Dec., ¶ 133.) Togher therefore discloses “*wherein the default quantity is designated to be used for a plurality of trade orders*” as recited in claim 8.

**11. The combination of Silverman, Gutterman, and Togher render claim 9 obvious.**

Claim 9 recites, “*dynamically displaying an entered order indicator at a graphical location aligned with a price level of the plurality of price levels, wherein the entered order indicator represents a user’s trade order working at the price level aligned with the entered order indicator.*” In the combination GUI of Silverman, Gutterman, and Togher the order icons would represent the outstanding orders in the overall market for a given commodity, not just the orders in a single broker’s deck. However, it would have been obvious to a PHOSITA to additionally indicate on the display which of the outstanding orders were made by the particular trader and the status of those orders so that the trader could easily recognize and



track his/her orders.

Gutterman supports this position by suggesting that “[o]ne of the skills of a broker is in knowing his deck [*i.e.*, working orders].”<sup>14</sup> (Gutterman, 3:14)

Gutterman appreciated that it was difficult for a trader to remember all of his/her working orders and the status of those orders, especially in times of heavy market activity. (*See* Gutterman, 3:14-24.) (“Occasionally, the decks are as much as an inch thick and require great memory skill and anticipatory planning.”) Gutterman sought to alleviate this burden by “allow[ing] the broker to manage ... orders more efficiently” by rapidly organizing and presenting this information on a display in a manner that can be quickly observed and easily understood. (Gutterman, 6:37-40, 6:51-55) As described above, Gutterman displayed the order information against a price axis to help achieve this goal. (Gutterman, FIG. 2b)

Based on these teachings, a PHOSITA would also have appreciated the importance of indicating on the display which orders are the trader’s working orders and the status of those orders. Additionally, a PHOSITA would have understood that plotting the trader’s working orders against the price axis would

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<sup>14</sup> A broker is a type of trader. For a broker, “the deck is a stack of orders that are to be executed by the broker.” (Gutterman, 3:14.) In other words, the broker’s deck represents his/her “working orders.”

have allowed the trader to quickly observe the prices that his/her orders were working at. (Rho Dec.<sup>15</sup>, ¶¶47-49.)

**12. The combination of Silverman, Gutterman, and Togher render claim 10 obvious.**

The GUI of Silverman, Gutterman, and Togher “*cancel[s] the user’s trade order represented by the entered order indicator in response to a single action of the user input device with the cursor of the user input device positioned over the entered order indicator.*” As discussed, Gutterman teaches providing an instruction to the GUI by selecting an area/location in the bid or ask display region to perform an action, *e.g.*, enter an order. (Gutterman, 13:30-31.) Togher discloses the ability to cancel an order. (Togher, 11:48-51.) It would have been obvious to a PHOSITA to implement Togher’s order cancel feature in the GUI of Silverman, Gutterman, and Togher to allow a trader to cancel an outstanding order that is displayed by the GUI. Canceling orders is a well-known concept in the field of commodities trading. Moreover, a PHOSITA would have understood that a trader’s ability to quickly and accurately exit market positions when he/she senses that the market is turning adverse to those positions is of the utmost importance to a high-speed, high-frequency trader. (Rho Dec., ¶51.)

**13. The combination of Silverman, Gutterman, and Togher**

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<sup>15</sup> The Declaration of David Rho is provided as Exhibit 1023.

**render claim 12 obvious.**

In the GUI of Silverman and Gutterman, *“the bid display region, the ask display region, and the order entry region are displayed vertically or horizontally.”* As illustrated in FIG. 2b of Gutterman and FIG. B of the Roman Decl., the bid display region, the ask display region, and the order entry region are displayed vertically. (Roman Dec., ¶134.)

**14. The combination of Silverman, Gutterman, and Togher render claim 13 obvious.**

In the GUI of Silverman and Gutterman, *“the bid and ask display regions are displayed separately.”* As illustrated in FIG. B of the Román Declaration, the GUI of Silverman and Gutterman has a “bid side” on the left of the price axis and an “offer side” on the right of the price axis. That is, the bid and ask regions are displayed separately.

**15. The combination of Silverman, Gutterman, and Togher render claim 14 obvious.**

In the GUI of Silverman and Gutterman, *“the plurality of price levels are displayed along the price axis”*: The GUI of Gutterman “is organized into a buy side and a sell side and comprises a dividingly positioned column 136 of price ticks, each of which may indicate 1/32 of a dollar (as shown) or another amount as appropriate to the commodity or instrument being traded.” (Gutterman, 12:1-6.)

**16. The combination of Silverman, Gutterman, and Togher render claim 15 obvious.**

In Gutterman, “*the plurality of price levels do not move except as a result of a manual repositioning command.*” Gutterman discloses that the price axis is manually scrolled using “touch-sensitive up and down arrows.” (*Id.* at 12:51-13:4.) Absent the manual scrolling by the user, the price levels of Gutterman remain fixed (do not move). (Roman Dec., ¶ 15.)

**17. The combination of Silverman, Gutterman, and Togher render claim 16 obvious.**

As described above, the combination of Silverman and Gutterman fails to disclose the use of default values. Togher discloses “*receiving an input from a user that designates the default quantity to be used for a plurality of trade orders*”: Togher discloses that in preparation for interacting with order entry displays, “each trader can call up a ‘Trader Profile’ screen . . . to establish or modify his personal default values for normal and maximum trading size . . . .” (Togher, 12:7-18, 8:65-9:10.)

Togher further discloses “*receiving a plurality of consecutive single action commands from a user input device, each single action command sending a trade order to the electronic exchange, each trade order having an order quantity based on the default quantity without the user designating the default quantity between the single action commands.*” In Togher, a trader selects a button (*e.g.*, “Sell 34,” “Buy 36”) through a single action of a user input device to set a price of a trade

and send the trade order using the default quantity. (*Id.* at 8:65-9:10, 11:33-41.) A PHOSITA would have understood that a trader using Togher's system could select one or more of the buttons more than once to send multiple orders having the default quantity. (Roman Dec., ¶ 139.)

**18. The combination of Silverman, Gutterman, and Togher render claim 17 obvious.**

Togher discloses "*wherein the plurality of trade orders comprises a combination of trade orders to buy and sell the commodity.*" A PHOSITA would have understood that a trader using the combined system of Silverman, Gutterman, and Togher could select a combination of the "Sell 34," "Buy 36," "Send 52," "Bid 54," "Offer 56" and "Off 60" buttons to send multiple orders having the default quantity. (Roman Dec., ¶ 140.)

**19. The combination of Silverman, Gutterman, and Togher render claims 18, 20, 22, 24, and 27 obvious.**

As described above, in the GUI of Silverman and Gutterman, a user can select an order "by touching the corresponding order icon." (Gutterman, 13:27-29.) Additionally, Gutterman discloses that "the touch-sensitive screen functions can also be implemented by a conventional keyboard, mouse and other standard input devices." (Gutterman, 7:33-36.) A "single click" action using a conventional mouse was well known mouse action at the time of the invention. (Roman Dec., ¶ 141.) Therefore, it would have been obvious to a person of

ordinary skill in the art that “*the single action of the user input device*” [mouse input device of Gutterman] would “*consist of a single click of the user input device.*”

**20. The combination of Silverman, Gutterman, and Togher render claims 19, 21, 23, 25, and 28 obvious.**

As described above, in the GUI of Silverman and Gutterman, a user can select an order “by touching the corresponding order icon.” (Gutterman, 13:27-29.) Additionally, Gutterman discloses that “the touch-sensitive screen functions can also be implemented by a conventional keyboard, mouse and other standard input devices.” (Gutterman, 7:33-36.) A “double click” action using a conventional mouse was well known mouse action at the time of the invention. (Roman Dec., ¶ 142.) Therefore, it would have been obvious to a person of ordinary skill in the art that “*the single action of the user input device*” [mouse input device of Gutterman] would “*consist of a double-click of the user input device.*”

**C. Ground 3: The combination of Silverman, Gutterman, Togher and Paal renders claim 11 obvious.**

The combination of Silverman, Gutterman, and Togher fail to disclose “*re-centering said prices corresponding to the bids and asks about an inside market price upon receipt of a re-centering instruction.*” However, re-centering was a well-known GUI technique prior to the earliest possible priority date of the ’411

patent. (Roman Dec., ¶146.) Paal (provided as Exhibit 1018) discloses the technique of “re-centering.”

Paal teaches re-centering of an active window to display information around a new origin. Paal initiates a display of information when “the cursor function key is active” upon receipt of a re-centering instruction. (Paal, 14:16-17.) That is, a cursor key is active when the “cursor function key or signal generation means in the present embodiment is a button located on the mouse which is pressed down to set the function key active.” (*Id.* at 5:46-49.) One way to display information when the cursor key is active in Paal is to determine “the new position of the view area 7.” (*Id.* at 14:34.) Paal uses the new position of the viewable area to compute the “viewable portion of the available information.” (*Id.* at 14:66-67.) For example, “the position of the viewable portion of information (defined by corners (cx,cy) and (dx,dy)) within the information buffer (iw,ih) can be computed corresponding to the position of the view area 7 (defined by (ax,ay) and (bx,by)) within the palette working area 6 (pw,ph).” (*Id.* at 15:3-8.) This position “within the information buffer becomes the new origin of the information displayed in the active window.” (*Id.* at 15:8-10.) Once Paal determines the origin, Paal uses a “well-known techniques (e.g. system calls provided by an operating system window manager) [to re-center] the active window ... to the new data origin 814.” (*Id.* at 15:10-13.) The “re-centering causes a new portion of information to be displayed in the active

window.” (*Id.* at 15:13-15.)

As discussed above relative to claim 1, the market bar of Gutterman may be positioned at the “inside market.” A PHOSITA would have been motivated to use the inside market (market bar) as the origin for the re-centering technique of Paal. (Roman Dec., ¶148.) Further, a combination of Gutterman, Togher and Paal would have been obvious to a PHOSITA, because a PHOSITA would have looked at Paal to re-center dynamic data displayed on a computer terminals and workstations, such as those of Gutterman and Togher by way of a re-centering instructions generated by a user input device that manipulates a GUI as taught in Paal, as such a combination would have been nothing more than combining prior art elements according to known methods to yield predictable results. (Roman Dec., ¶148.)

**D. Ground 4: TSE in view of Togher render claims 1-28 obvious.**

TSE discloses each and every limitation of independent claims 1 and 26 except “*selecting a particular graphical area in the order entry region through a single action of the user input device to both set a price for the trade order and send the trade order having a default quantity to the electronic exchange.*”

However, this limitation is disclosed by Togher as discussed below.

**1. Overview of TSE**

TSE discloses a “Futures/Options Trading System” for “trading commodities.” (TSE, p. 4-1.) The system of TSE includes a client computer, used



by trader, that has a graphical user interface (“GUI”) for displaying market information on a “Board/Quotation Screen.” (*Id.* at 1-1 to 2-5.) As explained by TSE, the “basic operation of the client is almost equal to that of the Windows personal computer.” (*Id.* at 7-1.) TSE discloses many different display options or modes for presenting the market information on the Board/Quotation Screen (*Id.* at 7-1; 7-13 to 7-18; 7-21; 7-25 to 7-26.) Market information that is displayed on the Board/Quotation Screen “is automatically updated at 3 second interval[s].” (*Id.* at 7-1.)

TSE’s “Board/Quotation Screen” functions differently depending on its display mode. (*Id.*) For example, the “Board/Quotation Screen” can be in “Basic Board Screen” mode or “Scroll Screen” mode. (*Id.* at 7-25 to 7-26.) When the Board Screen is in Basic Board Screen mode, the display automatically updates to maintain a central price “in the center of the board.” (*Id.* at 7-25.) In contrast, when the Board Screen is in Scroll Screen mode, the price display position does not automatically change. (*Id.*) TSE’s GUI allows traders to customize the Board/Quotation Screen based on how they preferred to view the market information while they actively traded. (Roman Dec., ¶ 156.)

The figure on 7-17 of TSE (reproduced below) illustrates the Board Screen in “Board x 2” or “Board Screen Divided in 2” mode. (TSE, p. 7-17.) This Board Screen is used to display market information and to place buy and sell orders

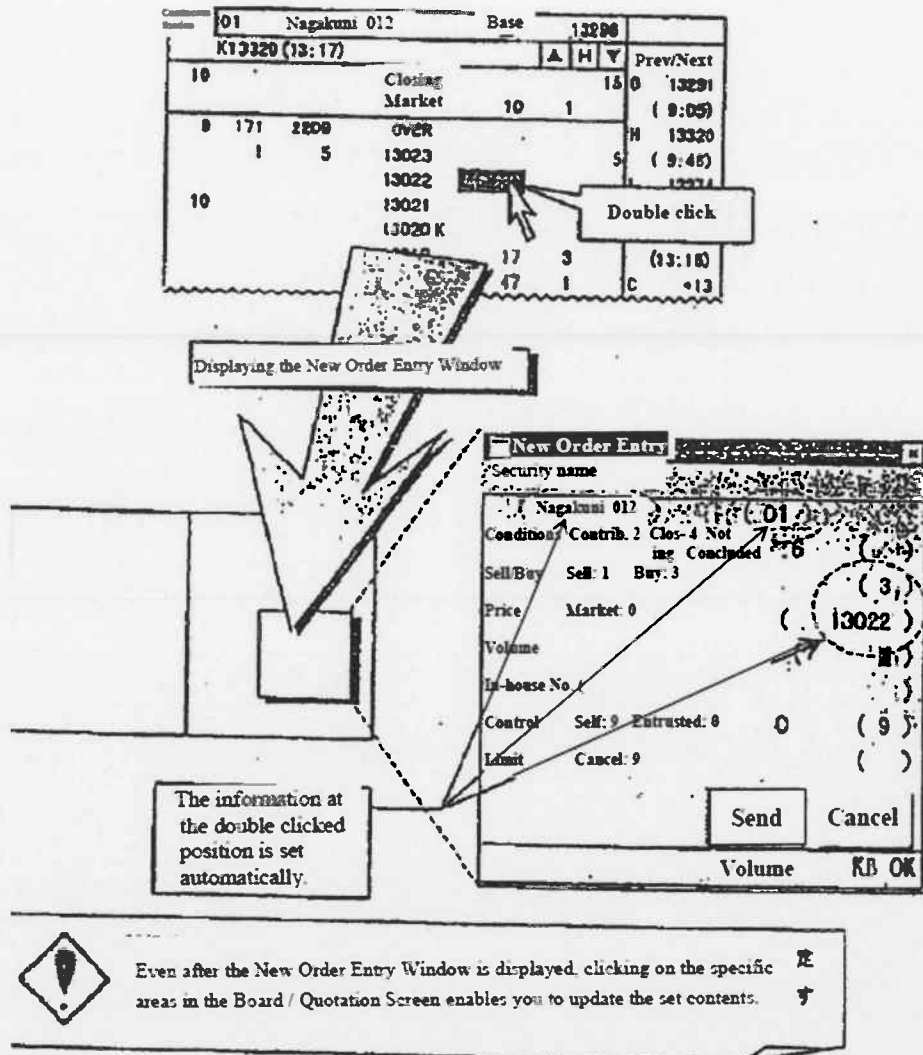
(perform order entry). (*Id.* at 7-17 to 7-24; 9-5 to 9-7.) As noted above, this Board Screen can be used in either Basic Board Screen mode or Scroll Screen mode.

O1Nagakuni 012		Base 13296	
K13320 (13:17) ('2012)			
10	250	Closing	250
Caution		Market	10 1
157	1810	OVER	
2	1	3	13029
2	4	132	13028
	4	145	13027
	2	70	13026
5	2	29	13025
	1	20	13024
	1	5	13023 #
			13022
10			13021
			13020K
		17	3
		47	1
		5	6
		36	3
		44	8
		46	2
		123	5
		141	3
		2	4
		817	3
		UNDER	6084 189

Prev/Next
O 13291 ( 9:05)
H 13320 ( 9:46)
L 13274 ( 9:10)
P 13310 (13:16)
C ( 2021) +13
V 42588
L5 13005 (13:14)
L4 13008 (13:15)
L3 13009 (13:15)
L2 13008 (13:16)
L1 13009 (13:16)
W 5

The figure at 9-5 of TSE (reproduced below) demonstrates order entry using the Board Screen of TSE. (*Id.* at 9-5.) Using an input device, such as a mouse, a trader may “[d]ouble click on a specific area on the Board/Quotation Screen” to enter a new order. (*Id.*) Depending “on the place that is double clicked, the ‘Security Name,’ ‘Sell/Buy Category,’ ‘Order Price,’ or ‘Execution Conditions’ are set automatically” before the order is then sent to the market. (*Id.*)



**2. A Person of Ordinary Skill in the Art would have been motivated to combine TSE and Togher.**

A PHOSITA would have found it obvious to add Togher's user-modifiable default values to TSE's electronic trading system. (Roman Dec., ¶157) 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). (Roman Dec., ¶ 157; Togher, 8:57-9:10 (default quantity allows rapid trading); *see also* Shneiderman at 82-83 (desirable to reduce number of operator actions such as keystrokes, undesirable to force operator to type in same information twice).)

By definition, defaults are standard or preset values that allow a program to function without the user inputting that value. (Microsoft Computer Dictionary, p. 150.) And at the time of the putative invention, it was a well-known design practice to use default values to improve the user's experience and reduce errors. (Roman Dec., ¶ 158; *see also* Cooper, p. 130.) (instead of offering users a blank slate, provide the values and settings the user will probably need.) Accordingly, a PHOSITA would have been motivated to incorporate the default values of Togher into TSE to achieve the predictable results of reducing the time needed to place an order and reducing errors. (Roman Dec., ¶ 158.) This is especially true in a user interface for an electronic trading system, where speed may be of the essence. (Roman Dec., ¶ 158.; *see also* Deel, p. 31.) (traders do not want cumbersome system that takes too long to enter the trade).

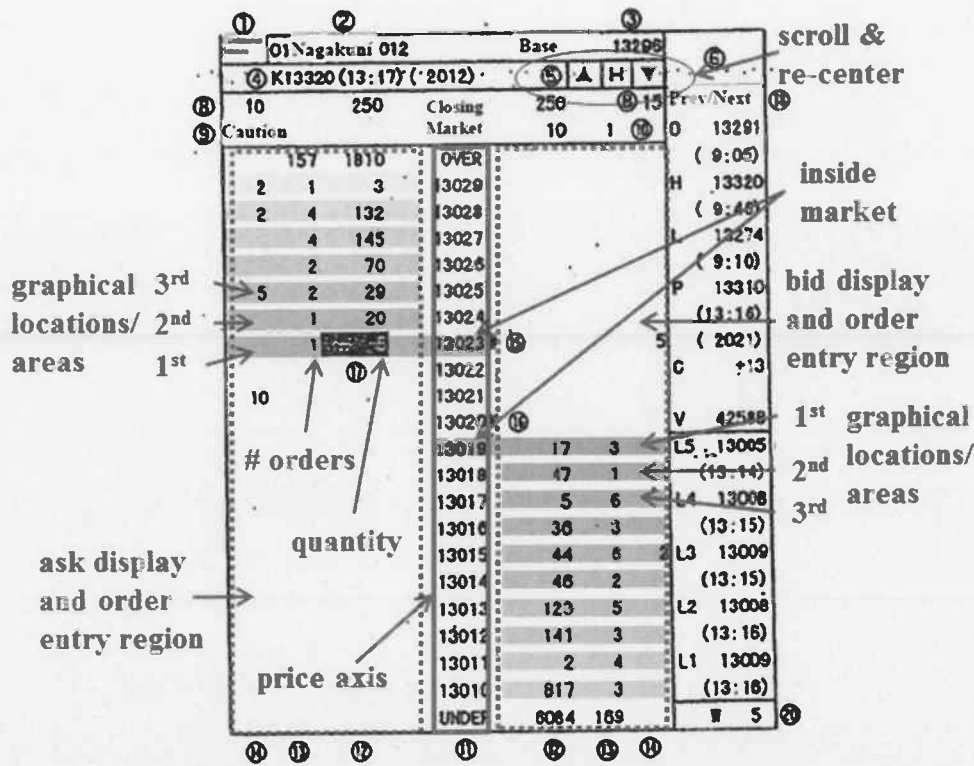
**3. The combination of TSE and Togher render independent claims 1 and 26 obvious.**

**a) The combination of TSE and Togher discloses the preamble of claims 1 and 26<sup>16</sup>**

TSE discloses a “*method for displaying market information relating to and facilitating trading of a commodity being traded in an electronic exchange ... on a graphical user interface.*” As discussed above, TSE discloses a computerized trading method and system that facilitates “trading commodities” by displaying market information to traders via a GUI having a “Board Screen.” (TSE, pp. 4-1, 7-17.) The Board Screen display information for a commodity including the original share price, Today’s volume, Total Failed Order Volume, the order price (market, closing, limit), and order volume. (*See id.* at 7-14 to 7-24.) FIG. D of the Román Declaration (reproduced below) maps the limitations of claims 1 and 26 to the Board Screen shown on figure at 7-17 of TSE.

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<sup>16</sup> Petitioners do not acquiesce that the preambles are limiting.



**FIGURE D: ROMÁN DECLARATION**

Because TSE is a computerized trading method and system, the system of TSE utilizes software and would include a “computer readable medium having program code recorded thereon.” (Roman Dec., ¶192.)

**b) The combination of TSE and Togher discloses the “receiving market information” limitation [1A], [26A]**

The client device of TSE receives “market information for a commodity from an electronic exchange.” The system of TSE handles trades in 5 markets including the Bond Futures market, the Index Future market, and the Stock Option market. (TSE, p. 4-1.) TSE discloses that “the Board/Quotation information is automatically updated at 3 second[] interval[s]” with market information, including

new bids and offers. (*Id.* at 7-1, 7-17.)

The exchange of TSE has “*an inside market with a current highest bid price and a current lowest ask price.*” TSE’s Board Screen displays the current highest bid price and the current lowest ask price. In the example shown in FIG. D, the current highest bid price is 13019 with a corresponding order quantity of 17 and the current lowest ask price is 13023 with a corresponding order quantity of 5. (*See id.* at 7-17.)

***c) The combination of TSE and Togher discloses the “displaying ... a bid display region bid” limitation [1B], [26B] and the “displaying ... an ask display region” limitation [1C], [26C]***

In TSE’s Board Screen, the column labeled ⑪ [Order Price Column] is a price column. (*Id.* at 7-17, 7-21.) The price column is a price axis having a plurality of price levels. The columns labeled ⑫ [Order Volume Columns] display “the order volume for each order price.” (*Id.* at 7-22, 7-23.) The columns labeled ⑬ [Number of Orders Column] display “the number of orders.” (*Id.*) Orders to the left of the price column ⑪ are outstanding asks and orders to the right are outstanding bids. (Roman Dec., ¶164; *see also* TSE, p. 9-5.) (depicting that selecting an area to the right of price column ⑪ automatically populates the new order entry window with “buy order” code (3)). This is highlighted in Roman Dec. above showing that the area to the right of the price column ⑪ corresponds

to the “*bid display region*” and the area to the left of the price column ⑪ corresponds to the “*ask display region*.” (Roman Dec., ¶ 164.)

Each of the bid and ask display regions of TSE comprises “*a plurality of graphical locations ... each graphical location in the [bid/ask] display region corresponding to a different price level of a plurality of price levels along a price axis [price column ⑪].*” FIG. D of the Román Declaration labels three exemplary locations (“1<sup>st</sup>,” 2<sup>nd</sup>,” and “3<sup>rd</sup>”) in each of the bid and ask display regions to highlight that each location corresponds to a different price level. (Roman Dec., ¶ 165.)

**d) The combination of TSE and Togher discloses the “dynamically displaying ... a first indicator” limitation [1D], [26D] and the “dynamically displaying ... a second indicator” limitation [1F], [26F]**

TSE displays “*a first indicator representing quantity associated with at least one order to buy the commodity at the highest price currently available in the market*” and “*a second indicator representing quantity associated with at least one trade order to sell the commodity at the lowest price currently available in the market*”: The columns labeled ⑫ in TSE’s Board Screen display “the order volume for each order price” and the columns labeled ⑬ display “the number of orders.” (*Id.* at 7-22.) The Board Screen of TSE displays the highest bid price and quantity (price: 13019; quantity: 17) and the lowest ask price and quantity (price:



13019; quantity: 5). In this depiction, the order quantity of 17 corresponds to the “*first indicator*” and the order quantity of 5 corresponds to the “*second indicator*.” (Roman Dec., ¶ 166.) As discussed above, and shown in FIG. D, the “*first indicator*” is “*in a first graphical location of the plurality of graphical locations in the bid display region*” and the “*second indicator*” is “*in a first graphical location of the plurality of graphical locations in the ask display region*.”

The display of bids and asks in TSE is “*dynamic*.” TSE discloses that “the Board/Quotation information is automatically updated at 3 second interval[s].” (TSE, pp. 7-1; 7-17; 7-21.) This occurs when the Board Screen is in Screen Scroll mode. (Roman Dec., ¶167.).

**e) The combination of TSE and Togher discloses the “moving the first and second indicators” limitations [1E], [26E], [1G], [26G]**

In TSE, “*upon receipt of market information comprising a new highest bid [lowest ask] price,*” “*the first indicator*” is moved “*relative to the price axis to a second graphical location of the plurality of graphical locations in the bid [ask] display region*.” TSE discloses that “the Board/Quotation information is automatically updated at 3 second interval[s]” with market information, including new bids and offers. (TSE, pp. 7-1; 7-17; 7-21.) When the Board Screen is in Scroll Screen mode, a market event, such as a change in the inside market, causes the first and second indicators to be displayed at a different location along the

common static price axis. (Roman Dec., ¶ 168.) That is, the price column stays fixed when the market information changes. (Roman Dec., ¶168.)

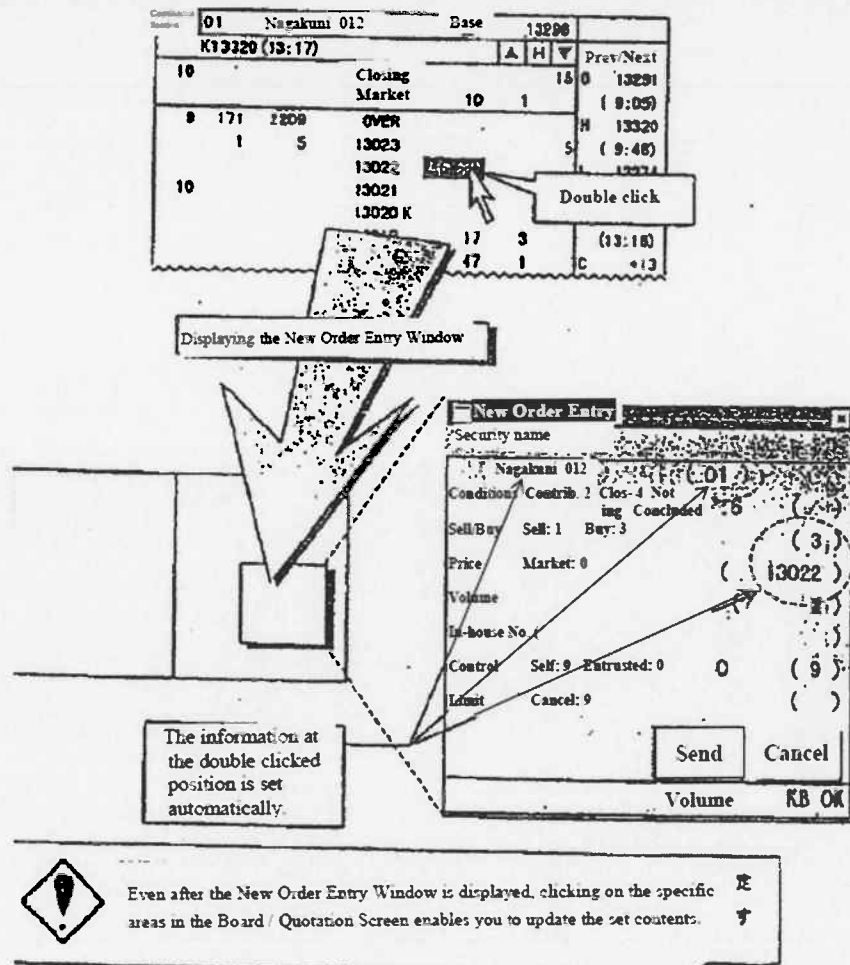
Thus, “*the first indicator*” is moved “*to a second graphical location of the plurality of graphical locations in the bid display region*” and this move is “*relative to the price axis.*” (Roman Dec., ¶170.) Similarly, “*the second indicator*” is moved “*to a second graphical location of the plurality of graphical locations in the ask display region*” and this move is “*relative to the price axis.*” (Roman Dec., ¶170.) The “*second graphical location*” for the first indicator corresponds “*to a price level of the plurality of price levels associated with the new highest bid price*” and the “*second graphical location*” for the second indicator corresponds “*to a price level of the plurality of price levels associated with the new lowest ask price.*” Because the inside market values change, “*the second graphical location is different from the first graphical location in the bid [ask] display region.*” (Roman Dec., ¶170.)

**f) The combination of TSE and Togher discloses the “displaying ... an order entry region” limitation [1H], [26H]**

The figure at 9-5 of TSE (reproduced below) demonstrates order entry using the Board Screen. (TSE, p. 9-5.) To enter a new order in TSE, the trader “[d]ouble click[s] on a specific area on the Board/Quotation Screen.” (*Id.*) The areas on the screen programmed to initiate an action when selected by a mouse action are “a

*plurality of graphical areas for receiving single action commands.”*

The “single action commands” of TSE “set trade order prices and send trade orders.” In response to this selection of an area by the Trader, a new order entry window is automatically populated with information including the Order Price. (*Id.*) The new order entry window also includes a send button to send the order to the market.



As further illustrated FIG. D, the order entry region comprises “a plurality of graphical areas ... each graphical area corresponding to a different price level

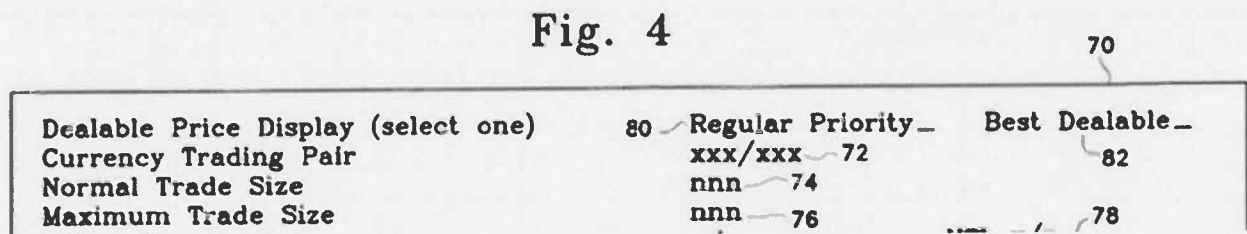
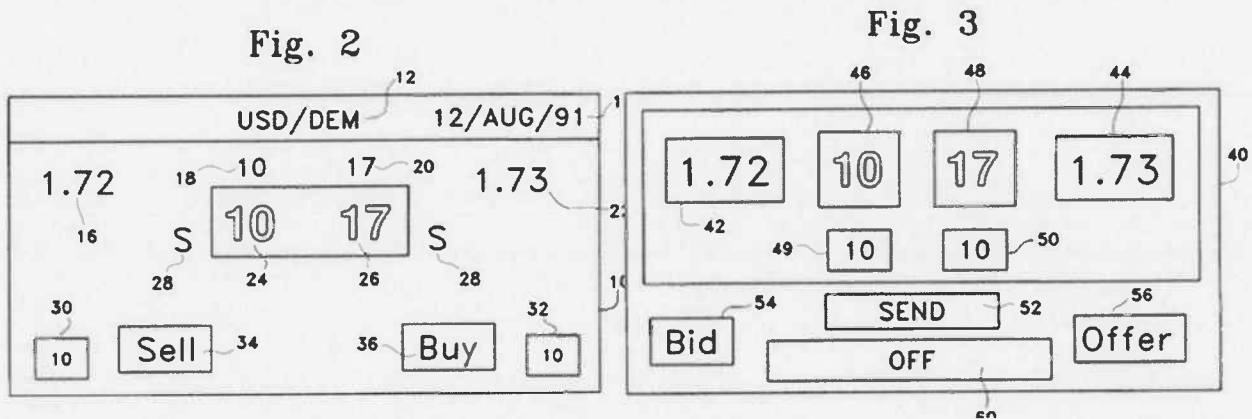
along the price axis [price column ⑪].”

**g) The combination of TSE and Togher discloses the “selecting a particular graphical area in the order entry region” limitation [1I], [26I]**

As discussed above, when the cursor is positioned on a graphical area of the Board Screen, a trader “[d]ouble click[s] on a specific area on the Board/Quotation Screen” to enter a new order. (TSE, p. 9-5.) Depending “on the place that is double clicked, the ‘Security Name,’ ‘Sell/Buy Category,’ ‘**Order Price,**’ or ‘Execution Conditions’ are set automatically” in the new order window. (*Id.* at 9-5.)(emphasis added) Selecting the send button in the “New Order Entry” window “send[s] the input order contents to the central system.” (*Id.* at 9-11.) The ’411 patent describes a “single action” broadly: “Rather, any action by a user within a short period of time, whether comprising one or more clicks of a mouse button or other input device, is considered a single action of the user for the purposes of the present invention.” (’411 patent, 4:18-22.) The sequence of “double-clicking” followed by the selection of the send button in the new order window can happen in a short period of time. (Roman Dec., ¶173.) This sequence therefore meets the “*selecting a particular graphical area ... through a single action.*”

As described above, TSE describes that the action sets a price for the trade order and sends the trade order to the electronic exchange. TSE does not disclose that the trade order has a default quantity. Togher discloses setting default

quantities for trade orders: “As shown in FIG. 4, each trader can call up a ‘Trader Profile’ screen 70 ... to establish or modify his personal default values for normal and maximum trading size ....” (Togher, 12:7-15; FIG. 4.) (reproduced in-part below)(*see also id.* at 8:65-9:10, 11:20-25.) The “Trader Profile” allows a trader to establish the default quantity value labeled 30 and 32 in FIG. 2 and 49 and 50 of FIG. 3 of Togher (reproduced below). (*Id.*)



**4. The combination of TSE and Togher render claim 2 obvious.**

As explained above, TSE discloses an “[bid/ask] order entry region comprising a plurality of graphical areas for receiving single action commands to send trade orders to [buy/sell].” In TSE, as described relative to the figure at 9-5,

a trader places a cursor over an area to the right of the price column (11), and selects that area to automatically populate the new order entry window with code “(3)” in the buy/sell field indicating a buy order. (TSE, p. 9-5.) Thus, the region to the right of the price column (11) corresponds to the “*bid order entry region*.” (Roman Dec., ¶ 175.) Placing a cursor over an area to the left of the price column (11) (as depicted in the figure at 7-17 of TSE), and selecting that area, automatically populates a new order entry window with the code “(1)” in the buy/sell field, which indicates a sell or ask order. (Roman Dec., ¶ 175.) Thus, the region to the left of the price column (11) corresponds to the “*ask order entry region*.” Both the “*bid order entry region*” and the “*ask order entry region*” include a plurality of graphical areas that each corresponds to a different price level of the plurality of price levels along the price column (11).

**5. The combination of TSE and Togher render claim 3 obvious.**

In TSE, “*the single action further sets whether the trade order is an order to buy or sell the commodity*”: “[D]epending on the place that is double clicked, the ... ‘Sell/Buy Category’ [is] set automatically.” (TSE, p. 9-5.) For example, the category may be set as “(1)” for “buy” and “(3)” for “sell.”

**6. The combination of TSE and Togher render claim 4 obvious.**

In TSE, “*the bid order entry region overlaps with a bid display region and*

*the ask order entry region overlaps with an ask display region.*” As illustrated in FIG. D of Román declaration the bid and ask order entry regions overlap with bid and ask display regions, respectively. (*See also*, TSE, p. 9-5.)

**7. The combination of TSE and Togher render claim 5 obvious.**

The “*the overlapping of the bid [ask] order entry region with the bid [ask] display region*” in the GUI of Silverman and Gutterman permits the trader “*to send trade orders to buy [sell] the commodity by positioning a cursor over the first indicator and selecting a graphical area corresponding to the current highest bid [lowest ask] price*”: The figure at 9-5 of TSE illustrates the ability to position “a cursor over the first indicator and selecting a graphical area corresponding to the current highest bid [lowest ask] price.” (Roman Dec., ¶ 178.) It was well-known prior to the earliest possible priority date of the ’411 patent that a “cursor is the visible representation on the screen of the mouse’s position.” (Cooper, p. 208.) It was further well-known that a “user moves the mouse until its corresponding on-screen cursor is pointing to, or placed over, the desired object.” (*Id.* at 203.)

**8. The combination of TSE and Togher render claim 6 obvious.**

In TSE, “*the trade order is an order to buy [sell] the commodity if a position of a cursor at a time of the single action is within a bid [ask] order entry region:*” “[D]epending on the place that is double clicked, the ... ‘Sell/Buy Category’ [is]

set automatically.” (TSE, p. 9-5.) For example, the category may be set as “(1)” for “buy” and “(3)” for “sell.”

**9. The combination of TSE and Togher renders claim 7 and 8 obvious.**

As discussed above relative to claim limitations [1I] and [26I], Togher discloses a “*trade order having a default quantity*” (claim 7). The default quantity of Togher is used when a trader is placing a trade order – that is a single trade order. (Roman Dec., ¶ 179.) Therefore, Togher further discloses “*wherein the default quantity is designated to be used for a single trade order.*”

The “*default quantity*” of Togher can also be repeatedly used when a trader is placing a trade order – that is, for a plurality of serial trade orders. (Roman Dec., ¶ 180.) Indeed, the purpose of default value is to provide a value when a specific condition or conditions occurs. (Roman Dec., ¶ 180.) Togher therefore discloses “*wherein the default quantity is designated to be used for a plurality of trade orders*” as recited in claim 8.

**10. The combination of TSE and Togher render claim 9 obvious.**

Claim 9 recites, “*dynamically displaying an entered order indicator at a graphical location aligned with a price level of the plurality of price levels, wherein the entered order indicator represents a user’s trade order working at the price level aligned with the entered order indicator.*” A PHOSITA would also have



appreciated the importance of indicating on the display which orders are the trader's working orders and the status of those orders. Additionally, a PHOSITA would have understood that plotting the trader's working orders against the price axis would have allowed the trader to quickly observe the prices that his/her orders were working at. Thus, it would have been obvious to a PHOSITA to "dynamically display an entered order indicator," as recited in claim 9 in the system and method disclosed by the combination of TSE and Togher. (Rho Dec., ¶¶31-34.)

**11. The combination of TSE and Togher render claim 10 obvious.**

Claim 10 recites, "canceling the user's trade order represented by the entered order indicator in response to a single action of the user input device with a cursor of the user input device positioned over the entered order indicator." As discussed, TSE teaches providing an instruction to the GUI by selecting an area/location in the bid or ask display region to perform an action, *e.g.*, enter an order. (TSE, 9-5.) Togher discloses the ability to cancel an order. (Togher, 11:48-51.) It would have been obvious to a PHOSITA to implement Togher's order cancel feature in the GUI of TSE to allow a trader to cancel an outstanding order that is displayed by the GUI. Canceling orders is a well-known concept in the field of commodities trading. (Rho Dec., ¶¶35-36.)

**12. The combination of TSE and Togher render claim 11 obvious.**

TSE discloses “receiving a re-centering command to center the inside market in a window of a graphical user interface.” TSE discloses that “click[ing] either the [▲] or [▼] scroll button on the board screen with the mouse” will transition the Board Screen from the “Basic Board Screen” to the “Scroll Screen.” (TSE, p. 7-26.) In “the ‘Scroll Screen’ mode, the price display position does not change automatically.” (*Id.*) “Click[ing] on the ‘H’ (Home) button on the board screen” will “return to the ‘Basic Board Screen’ from the ‘Scroll Screen.’” (*Id.* at 7-26.) In the “Basic Board Screen,” the “board information and display is updated so that the ‘Board Display Central Price’ is **always displayed in the center of the board.**” (*Id.* at 7-25.) Selecting the “H” (Home) button is a “*re-centering command*” that “*centers the inside market in a window of the graphical user interface.*” (Roman Dec., ¶181.)

**13. The combination of TSE and Togher render claim 12 obvious.**

As illustrated in FIG. D of the Román Declaration, TSE uses a series of columns to display market information and therefore the “*bid display region, the ask display region and the order entry region*” of TSE “*are oriented vertically.*”

**14. The combination of TSE and Togher render claim 13 obvious.**

TSE discloses that “*the bid and ask display regions are displayed*

*separately.*” In TSE’s Board Screen (in Screen Scroll mode), orders to the left of the price column (11) are outstanding asks and orders to the right are outstanding bids. (See TSE, p. 9-5.) As illustrated in FIG. D, the area to the right of the price column (11) corresponds to the claimed “*bid display region*” and the area to the left of the price column (11) corresponds to the claimed “*ask display region.*” (Roman Dec., ¶ 183.)

**15. The combination of TSE and Togher render claim 14 obvious.**

TSE discloses “*wherein the plurality of price levels are displayed along the price axis.*” The price column (11) of TSE (price axis) of the Board Screen displays multiple price levels. (Roman Dec., ¶ 184.)

**16. The combination of TSE and Togher render claim 15 obvious.**

In TSE, the “*plurality of price levels do not move except as a result of a manual repositioning command.*” When the Board Screen is “in the ‘Scroll Screen,’ the price display position does not change automatically.” (TSE, p. 7-25.) In Screen Scroll mode, “click[ing] either the [▲] or [▼] scroll button on the board screen with the mouse” moves (scrolls) the screen ‘1 Price’ at a time each time the mouse is clicked. (*Id.* at 7-26.) Thus, when the Board Screen is in Scroll Screen mode, the plurality of price levels remain fixed unless the user manually scrolls the screen (manual repositioning command). (Roman Dec., ¶ 185.)

**17. The combination of TSE and Togher render claim 16 obvious.**

Togher discloses or renders obvious “receiving an input from a user that designates the default quantity to be used for a plurality of trade orders, and receiving a plurality of consecutive single action commands from a user input device, each single action command sending a trade order to the electronic exchange, each trade order having an order quantity based on the default quantity without the user designating the default quantity between the single action commands.”

Togher discloses that in preparation for interacting with order entry displays, “each trader can call up a ‘Trader Profile’ screen . . . to establish or modify his personal default values for normal and maximum trading size . . . .” (Togher at 12:7-18, 8:65-9:10.) Thus, Togher discloses “receiving an input from a user that designates the default quantity to be used for a plurality of trade orders.” Togher further discloses selecting a button (*e.g.*, “Sell 34,” “Buy 36”) through a single action of a user input device to set a price of a trade and send the trade order using the default quantity. (*Id.* at 8:65-9:10, 11:33-41.) A PHOSITA would have understood that a trader using Togher’s system could select one or more of the buttons more than once to send multiple orders having the default quantity. (Roman Dec., ¶ 187.)

**18. The combination of TSE and Togher render claim 17 obvious.**

Togher discloses or renders obvious “wherein the plurality of trade orders comprises a combination of trade orders to buy and sell the commodity.” A PHOSITA would have understood that a trader using Togher’s system could select a combination of the “Sell 34,” “Buy 36,” “Send 52,” “Bid 54,” “Offer 56” and “Off 60” buttons to send multiple orders having the default quantity. (Roman Dec., ¶ 188.)

**19. The combination of TSE and Togher render claims 18, 20, 24, and 27 obvious.**

As discussed above, a trader can enter a new order by “[d]ouble click[ing] on a specific area on the Board/Quotation Screen” using an input device such as a mouse. (TSE, p. 9-5.) Using a single click action of a mouse to select and initiate an action was a well-known option to designers of GUIs prior to the earliest possible priority date of the ‘411 patent. (Roman Dec., ¶189.) Therefore, it would have been obvious to a person of ordinary skill in the art that “*the single action of the user input device*” [mouse input device] would “*consist of a single click of the user input device.*”

**20. The combination of TSE and Togher render claims 19, 21, 25, and 28 obvious.**

In TSE, “*the single action of the user input device consists of a double-click of the user input device:*” As discussed above, a trader can enter a new order by

“[d]ouble click[ing] on a specific area on the Board/Quotation Screen” using an input device such as a mouse. (TSE, p. 9-5.)

**21. The combination of TSE and Togher render claims 22 and 23 obvious.**

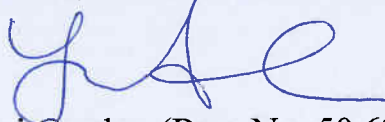
Claim 22 recites, “*wherein the single action of the user input device to cancel the trade order consists of a single click of the user input device.*” Both single click and double click mouse actions were well-known prior to the earliest possible priority date of the '411 patent. (Cooper, p. 202-03.)

**VI. Conclusion**

For the reasons provided above, CBM review of claims 1-28 of U.S. Patent No. 7,676,411 is requested.

Respectfully submitted,

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**CERTIFICATION OF SERVICE**

As required by 37 C.F.R. §§ 42.6(e) and 42.205(a)), the undersigned hereby certifies that the foregoing **PETITION FOR COVERED BUSINESS METHOD REVIEW OF U.S. PATENT NO. 7,676,411** and all supporting exhibits were served on May 19, 2014, in its entirety via FedEx<sup>®</sup> on the following:

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Respectfully submitted,

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