UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRUCE E. FRIEDMAN, JOHN T. HUGHES, JR.,
GOPICHAND KONGANI and DANIEL F. MOORE

Appeal 2008-0298
Application 10/301,804
Technology Center 3600

Decided: July 29, 2008

Before: HUBERT C. LORIN, ANTON W. FETTING and
STEVEN D.A. McCARTHY, *Administrative Patent Judges*.

McCARTHY, *Administrative Patent Judge*.

DECISION ON APPEAL

1 STATEMENT OF THE CASE

2 The Appellants appeal under 35 U.S.C. § 134 (2002) from the final
3 rejection of claims 1- 33. We have jurisdiction under 35 U.S.C
4 § 6(b) (2002). We heard argument of counsel by telephone on July 10,

2008.

The claims on appeal relate to computerized trading systems which trade securities electronically. (Spec. 7, ll. 1-2). Such computerized trading systems typically include processors that process security interest messages such as messages relating to orders or quotes. (Spec. 6, ll. 15-21 and 7, l. 30 – 8, l. 5). Independent claim 19 is typical of the appealed claims and reads as follows:

> 19. A computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by the processor, cause that processor to:
>
> receive a primary attributable security interest message placed by a market participant on a securities trading system, wherein the primary attributable security interest message relates to a defined quantity of an individual security traded on the securities trading system; and
>
> receive one or more secondary attributable security interest messages placed by the market participant, each secondary attributable security interest message increments the defined quantity of the primary attributable security interest message by an incremental quantity;
>
> wherein the primary attributable security interest message is processed by a matching process prior to the secondary attributable security interest messages of the same market participant.

Claims 1-33 stand rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Appellants regard as the invention. Claims 1-33 also stand

rejected under 35 U.S.C. § 103(a) as being unpatentable over Silverman (U.S. Patent 5,077,665) over Donato (Publ. US 2002/0077962 A1).

We AFFIRM the rejection of claims 1-4, 6-14, 16-24 and 26-33 under § 103(a). We REVERSE the rejections of claims 1-33 under § 112, ¶ 2 and the rejection of claims 5, 15 and 25 under § 103(a).

ISSUES

The primary issues in this appeal are whether the Appellants have shown that the Examiner erred in rejecting claims 1-33 under § 112, ¶ 2; and whether the Appellants have shown that the Examiner erred in rejecting those claims under § 103(a) as being unpatentable over Silverman in view of Donato. These issues turn, at least in part, on whether language used in claims 1-33 is definite and whether Silverman and Donato teach claim elements including the receipt or linkage of primary and secondary attributable security interest messages.

FINDINGS OF FACT

The record supports the following findings of fact ("FF") by a preponderance of the evidence.

1. Silverman teaches a distributed anonymous matching system for use in trading instruments. (Silverman, col. 4, ll. 57-66).

2. Silverman's matching system includes a central system and one or more keystations connected to the central system. (Silverman, col. 5, ll. 23-29 and Fig. 1).

3. Users enter transaction messages such as bids, offers, hits and takes through the keystations. The central system identifies each transaction

message by a token and time stamps each transaction message when received. (Silverman, col. 8, ll. 41-44 and col. 12, l. 67 - col. 13, l. 21).

4. The central system maintains a book of bids and offers on each particular trading instrument. (Silverman, col. 5, ll. 23-29 and col. 10, ll. 40-44).

5. The books maintained by the central system contain information on the particulars of each bid and offer including identities. (Silverman, col. 10, ll. 44-55).

6. The central system attempts to match hits and takes for a particular instrument, as well as new bids and offers for that instrument, to bids and offers posted on the book. If a match is found for a hit, take, bid or offer in a transaction message, the transaction is automatically executed and the participants in the transaction are notified. (Silverman, col. 5, ll. 32-46).

7. The book maintained by the central system for each particular instrument is divided between a bid side and an offer side. The bid side arranges the bids by descending bid price amounts from the highest bid price amount to the lowest. In addition, the bid side arranged the bids, for each price amount, according to their time stamps from the earliest received to the latest. The offer side arranges the offers reciprocally. (Silverman, col. 7, l. 62 – col. 8, l. 11 and col. 8, ll. 41-44).

8. The central system aggregates quantities bid or offered at the same price level and allocates quantities to a match on the basis of price and time of entry into the system. (Silverman, col. 9, ll. 16-21).

9. The central system broadcasts a subset of each book maintained by the central system to each of the keystations for use in generating displays for users. (Silverman, col. 8, ll. 12-18).

10. Each keystation book contains accumulated summaries of bids for a particular instrument at particular price levels and offers for that instrument at particular price levels. (Silverman, col. 8, ll. 44-47). That is, the central system sums the number of instruments bid or offered at a given price and sends at least a subset of the sums to the keystations for report to users. (*See* Silverman, col. 8, ll. 47-55; *compare id.*, Fig. 4 *with id.*, Fig. 5).

11. Silverman's system is anonymous in the sense that the central system withholds the identity of the market participant making a bid or offer from the keystations used by other market participants until a transaction involving the bid or offer is complete. (Silverman, col. 8, ll. 30-35).

12. Donato teaches an interactive electronic trading platform for anonymously trading instruments. (Donato 1, ¶ 0013 and 2, ¶ 0023).

13. The users enter orders, manage orders and execute trades through graphical user interfaces which permit the users to enter hits, takes, bids and offers as well as to modify existing bids and offers. (Donato 2, ¶ 0023 and 3, ¶ 0025).

14. Donato's system includes a transaction server which maintains an order book for each instrument; and matches hits and takes against bids and offers posted in the order books. (Donato 4, ¶ 0039).

15. The system prioritizes orders relating to instruments other than dollar repurchase contracts first by price and then, if more than one order is posted for an instrument at the same price, by time. (Donato 3, ¶ 0029 and 4, ¶ 0039). A hit or take will always be matched with the highest priced bid or the lowest priced offer first. When more than one user has entered a bid at the highest current bid or an offer at the lowest current offer price, the

user who entered a bid or offer at that price first will have priority. (Donato 3, ¶ 0029).

16. A user may modify an existing bid or offer by increasing the specified quantity without losing time priority on the original quantity specified. The incremental quantity added by the modification will be treated as a new order and will be time-stamped with the time when the modification is submitted. (Donato 3, ¶ 0029).

PRINCIPLES OF LAW

A claim is indefinite if the language of the claim, read in light of the specification and the teachings of the prior art, is susceptible of no reasonable interpretation. *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005); *In re Moore*, 439 F.2d 1232, 1235 (C.C.P.A. 1971). Conversely, a claim is not indefinite if one of ordinary skill in the art would understand the scope of the claim when read in light of the specification. *Energizer Holdings, Inc. v. International Trade Comm'n*, 435 F.3d 1366, 1369 (Fed. Cir. 2006).

A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Supreme Court set out factors to be considered in determining whether claimed subject matter would have been obvious:

> [U]nder § 103, the scope and content of the prior art are to be determined; differences between the

> prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

Id., 383 U.S. at 17.

ANALYSIS

A. The Rejections of Claims 1-33 Under § 112, ¶ 2

1. The Phrase "The Same Market Participant"

The Examiner concludes that the first instance of the phrase "the same market participant" in each independent claim on appeal is unclear and confusing. More specifically, the Examiner concludes that the words "the same" might mislead one of ordinary skill in the art to believe that the phrase refers to a previously mentioned market participant. (Ans. 3-5). The Appellants contend that claims rewritten as recommended by the Examiner (*see id.*) would be cumbersome and that the proposed amendments would obfuscate the scope of the claims. (App. Br. 10). Generally speaking, a claim is not indefinite merely because language used to recite an element in the claim is of a form which might, in other contexts, refer back to a previous mention of the same element. *Energizer Holdings*, 435 F.3d at 1370-71. In the contexts of claims 1, 9, 19, 29 and 31, we believe that one of ordinary skill in the art would understand the Appellants' use of the phrase "the same market participant" to refer to the market participant who places both the recited primary and secondary attributable security interest messages.

1 2. The Term "Process" to Identify Elements of "Systems"

2 Claims 29-33 recite "message prioritization systems." The claims use
3 the term "process" to identify elements of these systems. The Examiner
4 concludes that the "message prioritization systems" recited in claims 29-33
5 are apparatuses and that the use of the term "process" to identify elements of
6 the systems recited in these claims would preclude one of ordinary skill in
7 the art from determining the components required for a particular apparatus
8 to fall within the scopes of one or more of the claims. (Ans. 12).

9 We agree with the Appellants (App. Br. 10) that claims 29-33 are
10 definite even though the recited processes are not limited to any particular
11 hardware platform since the claims clearly point out the subject matter of the
12 claimed invention. At the outset, we disagree with the Examiner's
13 interpretation of the word "system" as being synonymous with "apparatus."
14 The Appellants' Specification uses the word "system" sufficiently broadly to
15 include assemblies of processes, that is, of programs in execution,[1]
16 organized to accomplish sets of specific functions. For example, the
17 Specification uses the phrase "order routing system" to refer to the assembly
18 of processes (combined with the look-up table *50*) identified by reference
19 numeral *14* in Fig. 2. If the word "system" as used in claims 29-33 is
20 interpreted in the sense of an assembly of processes, one of ordinary skill in
21 the art would find no contradiction in the Appellants' recitation of the
22 elements of the claimed subject matter as "processes." Thus, claims 29-33
23 *are* susceptible of reasonable interpretation.

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[1] One pertinent definition of "process" is "[a] program in execution." ATIS-0100523.2007, ATIS TELECOM GLOSSARY, http://www.atis.org/glossary/definition.aspx?id=8224 ("process," def. 2) (last visited July 8, 2008).

On the record before us, the Appellants have shown that the Examiner erred in rejecting claims 1-33 pursuant to § 112, ¶ 2 under either ground advanced in the Examiner's Answer.

B. The Rejection of Claims 9-14, 18-24 and 28 Under § 103(a) as Being Unpatentable Over Silverman in View of Donato

The Appellants concede that, [f]or the purposes of this appeal only, claims 9-14, 18, 19-24 and 28, stand or fall together." (App. Br. 11). Pursuant to 37 C.F.R. § 41.37(c)(1)(vii) (2007), we adopt the Appellant's suggestion (*id.*) to select claim 19 as representative for purposes of reviewing the rejection of claims 9-14, 18-24 and 28 under § 103(a). The Appellants contend that the Examiner improperly fails to accord patentable weight to the recitation in claim 19 of primary and secondary attributable security interest messages placed by the same market participant. (App. Br. 13 & 14). The Appellants further contend that the Examiner has failed to articulate reasoning in support of the conclusion of obviousness having a rational underpinning in the teachings of Silverman and Donato and in the ordinary skill in the art. (App. Br. 18-19). We disagree.

At the outset, we note that the Appellants' argument is not entirely commensurate with the scope of claim 19. The Appellants contend that claim 19 is directed to a concept of "linking or associating [primary and secondary] messages together for certain purposes (display size) while keeping them distinct for others (order execution)." (Reply Br. 3). Claim 9 does not recite linking primary and secondary attributable security interest messages. The further recitation in claim 25 of instructions to create such a linkage implies that the linkage is not inherent in the recitations of claim 19.

"[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its application is beyond his or her skill." *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct., 1727, 1740 (2007). Silverman teaches a distributed anonymous matching system for use in trading instruments. (FF 1). The system includes a central system which maintains a book of bids and offers on each particular instrument. (FF 2 and 4). Each book arranges bids for a particular instrument by descending bid price amounts and further arranges bids at the same bid price according to their time of receipt. Offers are arranged reciprocally. (FF 7). The central system matches hits and takes for a particular instrument, as well as new bids or offers for that instrument, to posted bids and offers for the same instrument at the same price according to the time at which the posted bids and offers were received. (FF 6 and 8).

Donato teaches an interactive electronic trading platform for trading instruments (FF 12) which is similar to Silverman's matching system. (*Compare* FF 1, 2, 4 and 6-8 *with* FF 12, 14 and 15). As the Examiner points out (Ans. 7-8), Donato's system provides a graphical user interface which allows a market participant to modify an existing bid or offer placed by the same market participant by incrementing the specified quantity of the bid or offer. (FF 13 and 16). In view of the similarity of Donato's electronic trading platform to Silverman's matching system, it would have been obvious to improve Silverman's system so as to provide a market participant in Silverman's computerized trading system the option of sending one or more messages modifying posted bid or offer transmitted in a message placed by the same market participant. In a matching system as

taught by Silverman improved according to the teachings of Donato, a message transmitting an initial bid or offer would be a "primary security interest message" and a message placed by the same market participant transmitting a modification of the bid or offer would be a "secondary security interest message."

The Appellants contend that a security interest is "attributable" within the meaning of claim 19 only if the interest is displayed to the market. (*See* App. Br. 14). During prosecution, the Patent & Trademark Office

> applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.

In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

We agree with the Examiner (*see* Ans. 16) that the ordinary usage of the word "attributable" is broad enough to encompass a security interest (such as a bid or offer) associated with the identity of the market participant who placed the message. We also agree with the Examiner (Ans. 16) that the Appellants' Specification fails to specifically define the word "attributable" and that the Appellants have filed no evidence sufficient to permit the Examiner or us to find that those of ordinary skill in the arts pertinent to electronic-based securities trading in general, or to processing and displaying of information relating to electronic securities trading in particular, would ordinary use the word "attributable" in a narrower sense

than that found by the Examiner. Since Silverman discloses that the book maintained by the central system associates the identity of a bidder or offeror with the bid (FF 5), we find that a message transmitting an initial bid or offer, or a message modifying a posted bid or offer, would be "attributable" within the central system.

The Appellants' arguments do not convince us that the implementation of the improvement taught by Donato would have been beyond the ordinary skill in the art. On the record before us, the Appellants have not shown that the Examiner erred in rejecting claims 9-14, 18, 19-24 and 28 under § 103(a).

C. The Rejection of Claims 1-4, 8 and 31-33 Under § 103(a) as Being Unpatentable Over Silverman in View of Donato

The Appellants concede that, [f]or the purposes of this appeal only, claims 1-4, 8, and 31-33, stand or fall together." (App. Br. 19). Pursuant to 37 C.F.R. § 41.37(c)(1)(vii) (2007), we adopt the Appellant's suggestion (*id.*) to select claim 19 as representative for purposes of reviewing the rejection of claims 9-14, 18-24 and 28 under § 103(a). The Appellants contend that claim 1 distinguishes the matching system taught by Silverman as modified according to the teachings of Donato in that claim 1 recites a code assignment process which assigns a superior prioritization code to the primary attributable security interest message. (App. Br. 20). We disagree.

Silverman teaches time stamping primary security interest messages transmitting initial bids or offers as those messages are received. (FF 3). Donato teaches time stamping the incremental portions of secondary security interest messages which increment the quantities of the particular instrument

offered or bid in the primary security interest messages. (FF 16). The Appellants do not appear to dispute that time stamps are "prioritization codes." (*See* App. Br. 20). The Appellants also do not appear to contest that secondary attributable security interest messages (that is, messages modifying the quantities of posted bids or offers) must arrive later than the primary attributable security interest messages which the secondary messages modify. (*See* Spec. 12, ll. 19-22). Therefore, a matching system as taught by Silverman modified according to the teachings of Donato as discussed with regard to the rejection of claim 19 must assign to a primary attributable security interest message a superior prioritization codes (that is, an earlier time stamp) as compared with any prioritization codes assigned to a secondary attributable security interest message modifying the primary message. On the record before us, the Appellants have not shown that the Examiner erred in rejecting claims 1-4, 8 and 31-33 under § 103(a).

D. The Rejection of Claims 29 and 30 Under § 103(a) as Being Unpatentable Over Silverman in View of Donato

The Appellants contend that Silverman and Donato fail to teach a matching queue" as recited in claims 29 and 30. (App. Br. 20). The common meaning of "queue" is "[a] set of items . . . arranged in a sequence," ATIS-0100523.2007, ATIS TELECOM GLOSSARY, http://www.atis.org/glossary/definition.aspx?id=2457 (last visited July 21, 2008), and the Appellants point to no statement in their Specification which requires us to interpret "queue" more narrowly. We agree with the Examiner (Ans. 11) that the books maintained by Silverman's central system for each particular instrument (like the books maintained in Donato's

transaction server) are "matching queues" in that each book arranges bids for a particular instrument at a particular price in sequence according to time of receipt and also arranges offers for a particular instrument at a particular price in sequence according to time of receipt. (FF 7).

In addition, we note that Silverman's central system sums the quantity of each particular instrument bid by market participants at each of the highest current bid prices as well as the quantity of each particular instrument offered at each of the lowest current offer prices. The central system sends these sums to the keystations for report to the market participants. (FF 9-10). In order to calculate these sums, the central system necessarily requires an interface process (that is, a program executed in the central system) for obtaining from the matching queue all messages, including both primary and secondary messages attributable to any particular market participant, bidding or offering quantities of the instrument at a particular price so that the quantities may be entered into an arithmetic unit. On the record before us, the Appellants have not shown that the Examiner erred in rejecting claims 29 and 30 under § 103(a).

E. The Rejection of Claims 5, 15 and 25 Under § 103(a) as Being Unpatentable Over Silverman in View of Donato

We agree with the Appellants (App. Br. 20-21) that Silverman and Donato do not teach linking primary and secondary security interest messages. Silverman teaches broadcasting to each of the keystations a subset of the book maintained by the central system which contains accumulated summaries of bids at the same price and offers at the same price. (FF 9-10). Calculating the sum of all quantities bid at the highest

current bid price by all market participants would not have suggested any linkage between primary and secondary security interest messages placed by the same market participant. Likewise, calculating the sum of all quantities offered at the lowest current offer price would not have suggested any linkage between primary and secondary security interest messages placed by the same market participant. Silverman's teaching to assign tokens and time stamps to each security interest message (*see* FF 3) would not have suggested any linkage between primary and secondary attributable security interest messages placed by the same market participant. On the record before us, the Appellants have shown that the Examiner erred in rejecting claims 5, 15 and 25 under § 103(a).

F. The Rejection of Claims 6, 7, 16, 17, 26 and 27 Under § 103(a) as Being Unpatentable Over Silverman in View of

The Appellants concede that, [f]or the purposes of this appeal only, claims 6, 7, 16, 17, 26 and 27, stand or fall together." (App. Br. 19). Pursuant to 37 C.F.R. § 41.37(c)(1)(vii) (2007), we adopt the Appellant's suggestion (*id.*) to select claim 26 as representative for purposes of reviewing the rejection of claims 6, 7, 16, 17, 26 and 27 under § 103(a). Silverman teaches summing the number of instruments bid or offered at a given price and sending at least a subset of the sums to the keystations for reporting purposes. (FF 10). A matching system as taught by Silverman modified according to the teachings of Donato as discussed with regard to claim 1 necessarily would sum the incremental quantities added by secondary attributable security interest messages with the quantities bid or offered by primary attributable security interest message modified by the

secondary messages since the system would treat both the primary and secondary messages as bids or offers at the same price. The summing process would not affect the independence or the time priority of the primary and secondary attributable security interest messages in the book maintained in the central system. (*Id.*) On the record before us, the Appellants have not shown that the Examiner erred in rejecting claims 6, 7, 16, 17, 26 and 27 under § 103(a).

CONCLUSIONS OF LAW

On the record before us, the Appellants have shown that the Examiner erred in rejecting claims 1-33 under § 112, ¶ 2. The Appellants have not shown that the Examiner erred in rejecting claims 1-4, 6-14, 16-24 and 26-33 under § 103(a). The Appellants have shown that the Examiner erred in rejecting claims 5, 15 and 25 under § 103(a).

DECISION

We AFFIRM the Examiner's rejection of claims 1-4, 6-14, 16-24 and 26-33 and REVERSE the rejections of claims 5, 15 and 25.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

<u>AFFIRMED-IN-PART</u>

JRG

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