

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CHICAGO MERCANTILE EXCHANGE, INC.,
Petitioner,

v.

5th MARKET, INC.,
Patent Owner.

Case CBM2013-00027
Patent 6,418,419 B1

Before JAMESON LEE, JONI Y. CHANG, and MICHAEL R. ZECHER,
Administrative Patent Judges.

ZECHER, *Administrative Patent Judge.*

DECISION

Granting-in-part Patent Owner's Request for Rehearing
37 C.F.R. § 42.71(d)

I. INTRODUCTION

Patent Owner, 5th Market, Inc. (“5th Market”), timely filed a Request for Rehearing under 37 C.F.R. § 42.71(d) on January 15, 2015. Paper 34, “Req. Reh’g.” The Request for Rehearing seeks reconsideration of the Final Decision (Paper 33, “Dec.”) entered on December 17, 2014. In the Final Decision, we determined that claims 1–23 of U.S. Patent No. 6,418,419 B1 (“the ’419 patent”) are indefinite under 35 U.S.C. § 112 ¶ 2, and that claims 1–4, 6–23, and 41–49 of the ’419 patent are unpatentable under 35 U.S.C. § 103(a). Dec. 55–56. We also denied 5th Market’s Motion to Amend on the basis that 5th Market did not meet its burden of demonstrating that proposed, substitute claims 50–72 are patentable over the prior art of record. *Id.*

In its Request for Rehearing, 5th Market presents the following arguments: (1) our determination to deny 5th Market’s Motion to Amend as to proposed, substitute dependent claim 54 overlooks our determination that challenged dependent claim 5 is patentable over the prior art of record; (2) we overlooked 5th Market’s arguments directed to “simultaneously executing a trade of said items in the same and diverse markets as a single electronically matched trade,” as recited in independent claim 43; (3) we misapprehended that eliminating legging risk is a principle of operation of CFTC,¹ and modifying CFTC with the teachings of

¹ Memorandum from the Commodity Futures Trading Commission (“CFTC”) on the New York Mercantile Exchange’s (“NYMEX”) Proposal to Implement the NYMEX ACCESS Trading System (Dec. 7, 1992) (on file with the CFTC) (Ex. 1009, “CFTC”).

Lupien² would create substantial legging risk where no such risk existed previously; and (4) we overlooked that Petitioner, Chicago Mercantile Exchange, Inc. (“CME”), exclusively relies on CFTC’s disclosure of spreads, and by extension options spreads, to teach the “order for a traded item being an option in a form of an algorithm with constraints thereon,” as recited in independent claim 41, and similarly recited in dependent claim 15. Req. Reh’g. 2–14.

After 5th Market filed its Request for Rehearing, we initiated a conference call with the parties to discuss our determination to deny 5th Market’s Motion to Amend (Paper 21, “Mot. to Amend”) as to proposed, substitute dependent claim 54. Paper 35. Proposed, substitute dependent claim 54 includes the same expressly recited limitations as challenged dependent claim 5, but it indirectly depends from proposed, substitute independent claim 50, which removes the “or compare” language from challenged independent claim 1 to cure an indefiniteness problem. *See* Mot. to Amend 3–4. We informed the parties that we were considering not applying to proposed, substitute claim 54 the requirement in *Idle Free Sys., Inc. v. Bergstrom, Inc.*, Case IPR2012-00027, (PTAB June 11, 2013) (Paper 26) (“the *Idle Free* decision”) that a patent owner must demonstrate patentability over the prior art, in general. Paper 35, 2. The reason is that dependent claim 5, for which claim 54 was proposed as a substitute, was challenged by CME on the basis of prior art, but not shown by CME to be unpatentable over the prior art, and proposed, substitute dependent claim 54 narrows the scope of challenged dependent claim 5 while curing the indefiniteness

² Lupien et al., U.S. Patent No. 5,101,353, issued Mar. 31, 1992 (Ex. 1010, “Lupien”).

problem in challenged independent claim 1. *Id.* After hearing arguments from both parties, we authorized CME to file an Opposition to 5th Market’s Request for Rehearing (Paper 36, “Opp. to Req. Reh’g.”) that was tailored narrowly to address this issue. *Id.* at 3.

For the reasons discussed below, we grant 5th Market’s request to modify the Final Decision, particularly our determination to deny 5th Market’s Motion to Amend as to proposed, substitute dependent claim 54, but we decline to modify the Final Decision in any other respects.

II. STANDARD OF REVIEW

A request for rehearing must identify specifically all matters the party believes we misapprehended or overlooked, and the place where each matter was addressed previously in a motion, an opposition, or a reply. 37 C.F.R. § 42.71(d); *see also* 37 C.F.R. § 42.220(a) (stating that a patent owner response is filed as an opposition). With this in mind, we address the arguments presented by 5th Market in turn.

III. ANALYSIS

A. 5th Market’s Motion to Amend as to Proposed, Substitute Dependent Claim 54

5th Market contends that its Motion to Amend was directed solely to the issue of indefiniteness under 35 U.S.C. § 112 ¶ 2—namely, the removal of the “or comparing” language recited in challenged independent claim 1. Req. Reh’g. 3. 5th Market argues that, when denying the Motion to Amend, we overlooked our

initial determination that challenged dependent claim 5 is patentable over the prior art cited by CME in its Petition and, therefore, 5th Market was not required to demonstrate further in its Motion to Amend that proposed, substitute dependent claim 54 is patentable over the prior art of record or the prior art, in general. *See id.* (citing Dec. 45–46). 5th Market also argues that our reliance on the *Idle Free* decision is misplaced because that decision only is applicable in the context of an *inter partes* review proceeding, which does not permit grounds of unpatentability based on 35 U.S.C. § 112 ¶ 2. *Id.* at 3–4. Based on these arguments, 5th Market asserts that we should have granted its Motion to Amend as to proposed, substitute dependent claim 54. *See id.* at 5.

1. The Idle Free Decision is Applicable to a Covered Business Method Patent Review Proceeding

As an initial matter, we are not persuaded by 5th Market’s argument that our reliance on the *Idle Free* decision is misplaced. Although the *Idle Free* decision originates from an *inter partes* review proceeding, it nonetheless is applicable to a covered business method patent review proceeding because the statutory provisions and regulations that govern a motion to amend are identical in both proceedings. *Compare* 35 U.S.C. § 316(d) *and* 37 C.F.R. § 42.121, *with* 35 U.S.C. § 326(d) *and* 37 C.F.R. § 42.221. Moreover, we are not persuaded by 5th Market’s assertion that a ground of unpatentability based on 35 U.S.C. § 112 ¶ 2 only is permissible in a covered business method patent review proceeding. Req. Reh’g 4. In at least one instance, a ground of unpatentability based on 35 U.S.C. § 112 ¶ 2 is permissible in an *inter partes* review proceeding. For example, in an opposition to a motion to amend filed in an *inter partes* review proceeding, a petitioner may

present a ground of unpatentability based on 35 U.S.C. § 112 ¶ 2, because the statutory provision governing a final written decision in an *inter partes* review proceeding explains that the Board must determine the “patentability” of any new, amended claim. *See* 35 U.S.C. § 318(a) (stating that “the Patent Trial and Appeal Board shall issue a final written decision with respect to the *patentability* of . . . any new claim added under section 316(d)”) (emphasis added).

2. *5th Market Makes a Showing of Patentability Over the Prior Art, in General, for Proposed, Substitute Dependent Claim 54*

5th Market’s argument that we overlooked our initial determination that challenged dependent claim 5 is patentable over the prior art cited by CME in its Petition and, therefore, 5th Market was not required to demonstrate further in its Motion to Amend that proposed, substitute dependent claim 54 is patentable over the prior art of record or the prior art, in general, raises an interesting issue. *See* Req. Reh’g 3. During the conference call discussed above, we framed the following issue for the parties: in a covered business method patent review proceeding, must the patent owner demonstrate patentability over the prior art, in general, for a proposed, substitute claim, where the challenged claim being substituted was not shown unpatentable over the prior art of record by the petitioner, and only narrows the challenged claim while curing an indefiniteness problem? Paper 35, 3. We provided CME with an opportunity to address this issue in an Opposition to 5th Market’s Request for Rehearing. *Id.*

In its Opposition to 5th Market’s Request for Rehearing, CME argues that we properly determined in the Final Decision that 5th Market’s Motion to Amend was deficient with respect to proposed, substitute dependent claim 54 because 5th

Market did not distinguish this new claim over the prior art known to 5th Market. Opp. to Req. Reh'g. 2–3. CME's argument, however, does not address the specific issue we framed above. CME essentially used its Opposition to 5th Market's Request for Rehearing to re-argue arguments that it presented initially in its Opposition to 5th Market's Motion to Amend (Paper 23, "Opp. to Amend"). *Compare* Opp. to Req. Reh'g. 2–3, *with* Opp. to Amend 10–12.

When we focus on the particular circumstances presented in this case, it helps clarify why we framed the issue identified above. In the Final Decision, we determined that CME did not meet its burden of demonstrating by a preponderance of the evidence that challenged dependent claim 5 would have been obvious over the prior art cited by CME in its Petition. Dec. 45–47. Although we determined that challenged dependent claim 5 was not unpatentable over the prior art asserted by CME in its Petition, we still held that challenged dependent claim 5 was unpatentable because CME met its burden of demonstrating by a preponderance of the evidence that this claim was indefinite under 35 U.S.C. 112 ¶ 2. *Id.* at 20–22. In its Motion to Amend, 5th Market moved to substitute claims 50–72 for challenged claims 1–23 only if we determined that challenged claims 1–23, which recited the claim phrase “means for comparing,” are indefinite under 35 U.S.C. § 112, ¶ 2. Mot. to Amend 1–2. We explained in the Final Decision that, except for the removal of the language “or compare,” proposed, substitute independent claim 50 was the same as challenged independent claim 1. Dec. 51–52 (citing Mot. to Amend 3–4). We also explained that, except for the change in their dependency, proposed, substitute claims 51–72 were the same as challenged dependent claims 2–23. *Id.* at 52 (citing Mot. to Amend 4–8).

The requirement in the *Idle Free* decision for showing patentability over the prior art, in general, including accounting for the prior art known to the patent owner, and not just prior art cited by the petitioner, is based, at least in part, on the assumption that the original patent claim does not survive the challenge based on prior art asserted by the petitioner. Here, CME has not met its burden of demonstrating that challenged dependent claim 5 would have been obvious over the prior art cited in its Petition. 5th Market proposes substitute dependent claim 54 that only narrows the scope of challenged dependent claim 5 to overcome an indefiniteness problem. Under these particular circumstances, 5th Market does not need to do more to demonstrate patentability over the prior art, in general. Dependent claim 5 was examined by the United States Patent and Trademark Office (“Office”), and it further survived the unpatentability challenge by CME over prior art. This factual circumstance, without more, together with our determination that proposed, substitute dependent claim 54 only narrows the scope of challenged dependent claim 5 to cure an indefiniteness problem, is sufficient to satisfy 5th Market’s burden of demonstrating the patentability of proposed, substitute dependent claim 54 over prior art, especially given the absence of additional prior art cited and applied by CME when opposing 5th Market’s Motion to Amend.

*3. The Arguments Presented by CME in its Opposition to
5th Market’s Motion to Amend are not Persuasive*

CME presented a number of arguments in its Opposition to 5th Market’s Motion to Amend to support its assertion that we should not substitute claims 50–72 for challenged claims 1–23. CME’s arguments, however, do not address

directly proposed, substitute dependent claim 54. In any event, for the sake of completeness, we will address these arguments in turn.

CME contends that one of the requirements in the *Idle Free* decision is that a patent owner may not broaden a challenged claim in any respect. Opp. to Amend 2–3. CME argues that 5th Market’s proposal to replace challenged independent claim 1 with proposed, substitute independent claim 50, which removes the language “or compare,” impermissibly broadens the scope of challenged independent claim 1. *Id.* at 2–3, 6. CME’s argument is predicated on the notion that “means for matching or comparing” recited in challenged independent claim 1 does not include two alternative means-plus-function limitations, but instead includes a single means-plus-function limitation directed to one structure that is capable of performing both functions of matching and comparing. *Id.* at 3–6.

CME does not explain sufficiently why the claim term “or” should be construed to mean “and” in the context of the claim. As we explained in the Final Decision, because the claim phrase “means for matching or comparing” includes alternative language, i.e., “or,” it includes two alternative means-plus-function limitations that should be addressed separately. Dec. 16–17. In fact, during the course of this proceeding, CME does not dispute that two separate algorithms are required to be disclosed in the Specification of the ’419 patent—one to perform the function of matching and one to perform the function of comparing. *See* Paper 24, 14–15. Taking two alternative means-plus-function limitations and removing one alternative—in this case, “means for comparing”—effectively narrows the scope of challenged independent claim 1. In other words, we agree with 5th Market that removing one of two alternatives, leaving only one possibility, does not enlarge the

scope of a claim. Mot. to Amend 8. Therefore, contrary to CME's assertion, 5th Market satisfies the requirement in the *Idle Free* decision that a patent owner may not broaden a challenged claim in any respect because proposed, substitute independent claim 50 removes one of two alternative means-plus-function limitations, thereby narrowing the scope of challenged independent claim 1.

Next, CME contends that, based on the Board's guidance in *Nichia Corp. v. Emcore Corp.*, Case IPR2012-00005 (PTAB June 3, 2013) (Paper 27), a motion to amend must show sufficient written description support in the original disclosure for each new claim. Opp. to Amend 7–8. CME argues that there is insufficient written description support for the “means for matching” limitation recited in proposed, substitute independent claim 50 in the disclosure of the application that led to the '419 patent because independent claims 1 and 41, as originally filed, include a means-plus-function limitation that performs a different function. *Id.* at 8–10.

Proposed, substitute independent claim 50 recites, in relevant part, “means for matching . . . algorithmic buy/sell orders with algorithmic or non-algorithmic sell/buy orders.” Mot. to Amend 4. Upon reviewing the disclosure of the application that led to the '419 patent, independent claims 1 and 41, as originally filed, both include the language “means for matching . . . algorithmic buy/sell orders with non-algorithmic sell/buy orders.” Ex. 1022, 27:24–27, 33:1–3.³ In general, “original claims constitute their own description.” *In re Koller*, 613 F.2d

³ The page numbers referred to in the disclosure of the application that led to the '419 patent are the original page numbers located in the bottom, left-hand corner of each page.

819 (CCPA 1980); *In re Gardner*, 480 F.2d 879, 880 (CCPA 1973) (“It was equally a ‘written description’ whether located among the original claims or in the descriptive part of the specification.”). We are satisfied that, as of the filing date of the ’419 patent, the function performed by the “means for matching” limitation recited in independent claims 1 and 41, as originally filed, reasonably conveys to one of ordinary skill in the art that the inventors of the ’419 patent possessed substantially the same function performed by the “means for matching” limitation recited in proposed, substitute independent claim 50.

Lastly, CME contends that 5th Market’s Motion to Amend fails to show that the proposed, substitute claims 50–72 are patentable over the prior art, in general. Opp. to Amend 10–12. CME’s argument in this regard focuses solely on proposed, substitute independent claim 50. CME does not present separate unpatentability arguments against proposed, substitute dependent claim 54. In any event, as we explained above, dependent claim 5 was examined by the Office, and it further survived the unpatentability challenge by CME over prior art. That circumstance, without more, together with our determination that proposed, substitute dependent claim 54 only narrows the scope of challenged dependent claim 5 to cure an indefiniteness problem, is sufficient to satisfy 5th Market’s burden of demonstrating patentability of proposed, substitute dependent claim 54 over prior art, especially given the absence of additional prior art cited and applied by CME when opposing 5th Market’s Motion to Amend.

4. Summary

Based on the particular circumstance presented in this case, 5th Market has shown by a preponderance of the evidence that proposed, substitute dependent

claim 54 is patentable over the prior art. We, therefore, vacate the portion of our Final Decision denying 5th Market's Motion to Amend as to proposed, substitute dependent claim 54, and modify the Final Decision to include our analysis set forth above. Proposed, substitute dependent claim 54 is permitted only if it is rewritten in independent form, including all of the limitations of its underlying base claim and any intervening claims. In a Claim Appendix attached to this Decision, we have rewritten proposed, substitute dependent claim 54 in independent form, including all the limitations of proposed, substitute independent claim 50 and proposed, substitute dependent claim 51.

B. We did not Overlook Whether the Cited Prior Art Teaches a Particular Claim Limitation, Especially one that was Presented in the form of a Separate Patentability Argument in the Patent Owner Response

5th Market contends that, when determining that the prior art of record renders the challenged claims of the '419 patent unpatentable under 35 U.S.C. § 103(a), we overlooked a particular claim limitation that was argued separately in its Patent Owner Response. Req. Reh'g. 5. In particular, 5th Market argues that CFTC and Lupien, either alone or in combination, do not teach "simultaneously executing a trade of said items in the same and diverse markets as a single electronically matched trade," as recited in independent claim 43. *Id.* at 6–9. 5th Market asserts that it presented essentially the same argument in its Patent Owner Response. *Id.* at 5 (citing PO Resp. 12, 15, 25–26, 34, 36, 53–57).

5th Market cites to disparate portions of the Patent Owner Response that are not tied together to present a separate patentability argument regarding the disputed limitation. *See, e.g.*, PO Resp. 12, 15, 25–26, 34, 36, 53–57. These disparate

portions of the Patent Owner Response do not present substantive analysis that explains why the collective teachings of CFTC and Lupien relied upon by CME in its Petition do not teach the disputed limitation. To the extent that they discuss the purported “backfill” testimony of CME’s expert witness, Dr. Craig Pirrong, during cross-examination, as we explained in the Final Decision, the portions of Dr. Pirrong’s cross-examination testimony cited by 5th Market in the Patent Owner Response do not “backfill” the evidence presented by CME in its Petition, or otherwise render Dr. Pirrong’s supporting testimony provided in the accompanying Declaration less persuasive. *See* Dec. 43–44.

In addition, 5th Market’s Request for Rehearing directs us to new portions of the record that were not presented or developed in its Patent Owner Response. *Compare* PO Resp. 12, 15, 25–26, 34, 36, 53–57 (citing Ex. 1009, 7, 29, 34;⁴ Ex. 1010, 1:20–22, 1:35–42, 2:49–54, 2:60–3:3, 4:35–36, 6:53, 10:24–38, 11:51–62; Ex. 2008 (Declaration of Dr. Terry Rickard) ¶¶ 25, 58, 77–82; Ex. 2007, 177–81), *with* Req. Reh’g. 6–9 (citing Ex. 1010, 11:49–12:5, Fig. 7; Paper 32 (Oral Hearing Transcript), 51:18–52:3). A request for rehearing is not an opportunity to present and develop new arguments or evidence. Put simply, we could not have overlooked or misapprehended arguments or evidence not presented and developed by 5th Market in the first instance in the Patent Owner Response.

⁴ The page numbers referred to in CFTC are the original page numbers located in the top, middle of each page.

C. Mere Disagreement with our Analysis and Conclusion is not a Proper Basis on which to Request a Rehearing

5th Market contends that we misapprehended the arguments presented in its Patent Owner Response that eliminating legging risk is a principle of operation of CFTC, and modifying CFTC with the teachings of Lupien would create substantial legging risk where no such risk existed previously. Req. Reh’g 9 (citing PO Resp. 25–26, 31, 68–69). 5th Market argues that, although we recognized certain aspects of these arguments in the Final Decision, our analysis and conclusion misapprehends the teachings of CFTC, the supporting testimony of its expert witness, Dr. Rickard, and the purported “backfill” testimony of CME’s expert witness, Dr. Pirrong, during cross-examination. *Id.* at 10–12.

In the Final Decision, we considered these arguments presented in 5th Market’s Patent Owner Response, but we were not persuaded. *See* Dec. 37–39. 5th Market’s arguments in this regard amount to a mere disagreement with our analysis and conclusion. Disagreement with our analysis and conclusion is not a proper basis on which to request rehearing.

In any event, we note that these arguments presented by 5th Market are based, at least in part, on the purported “backfill” testimony of CME’s expert witness, Dr. Pirrong, during cross-examination and, according to 5th Market, his new approaches for adding Lupien’s external price feed to CFTC’s NYMEX American Computerized Commodity Exchange System and Services (“NYMEX ACCESS”). *See* Req. Reh’g 10–12. As we explained in the Final Decision, the portions of Dr. Pirrong’s cross-examination testimony relied upon by 5th Market do not “backfill” the rationale to combine the teachings of CFTC and Lupien set

forth by CME in the Petition, or otherwise undermine that rationale. *See* Dec. 41–42.

*D. 5th Market Mischaracterizes the Disclosures in CFTC
Relied Upon by CME in its Petition*

5th Market contends that we overlooked CME’s exclusive reliance upon CFTC’s spreads, and by extension option spreads, to teach the “order for a traded item being an option in a form of an algorithm with constraints thereon,” as recited in independent claim 41, and similarly recited in dependent claim 15. Req. Reh’g. 12–13. 5th Market argues that, despite the possibility that other types of algorithmic orders involving options may fall within the purview of this disputed limitation, the only algorithmic order involving an option that CME discloses is an option spread. *Id.* at 13. 5th Market asserts that, because CFTC’s NYMEX ACCESS system does not support trading option spreads at a differential, we erroneously determined that CME presented sufficient evidence to support a finding that CFTC teaches this disputed limitation. *Id.* at 13–14 (citing Ex. 1009, 34).

We are not persuaded by 5th Market’s arguments because they mischaracterize the disclosures in CFTC relied upon by CME in its Petition to teach the disputed limitation. As we explained in the Final Decision, the disputed limitation should not be construed so that it only encompasses option spreads. *See* Dec. 31–32. Instead, the broadest reasonable interpretation of the disputed limitation encompasses algorithmic orders involving options, one example being an option spread. *See id.*

As we noted in the Final Decision, CME contends that orders entered into CFTC's NYMEX ACCESS system are in the form of an algorithm with constraints, such as quantity, limit prices, strike price and put or call, and any other precondition for entry into the system. Dec. 32 (citing Pet. 60–61). Therefore, contrary to 5th Market's assertion, CME does not rely exclusively on CFTC's disclosure of spreads, and by extension option spreads, to teach the disputed limitation. Rather, we agree with CME that CFTC's disclosure of entering orders into the NYMEX ACCESS system in the form of an algorithm with constraints that are specific to options, such as put or call, amounts to entering algorithmic orders involving options. We, therefore, maintain our initial determination that CME presents sufficient evidence to support a finding that CFTC teaches the "order for a traded item being an option in a form of an algorithm with constraints thereon," as recited in independent claim 41, and similarly recited in dependent claim 15. Dec. 32.

IV. CONCLUSION

For the foregoing reasons, 5th Market has demonstrated that we misapprehended or overlooked the particular circumstances surrounding our initial determination to deny 5th Market's Motion to Amend as to proposed, substitute dependent claim 54. We, therefore, modify the Final Decision to grant 5th Market's Motion to Amend only as to proposed, substitute dependent claim 54. We maintain our initial determination to deny 5th Market's Motion to Amend as to proposed, substitute dependent claims 50–53 and 55–72. 5th Market, however, has not demonstrated that we misapprehended or overlooked any matter in determining

that claims 1–23 of the '419 patent are indefinite under 35 U.S.C. § 112 ¶ 2, and claims 1–4, 6–23, and 41–49 of the '419 patent are unpatentable under 35 U.S.C. § 103(a).

V. ORDER

Accordingly, it is:

ORDERED that 5th Market's Request for Rehearing is GRANTED-IN-PART;

FURTHER ORDERED that the portion of the Final Decision denying 5th Market's Motion to Amend as to proposed, substitute dependent claim 54 is vacated;

FURTHER ORDERED that the Final Decision is modified to include our analysis regarding proposed, substitute dependent claim 54 (*see supra* Section III(A)(1–4));

FURTHER ORDERED that proposed, substitute dependent claim 54 is authorized as rewritten in independent form as shown in the Claim Appendix attached to this Decision; and

FURTHER ORDERED that 5th Market's Request for Rehearing is DENIED in all other respects.

CBM2013-00027
Patent 6,418,419 B1

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CLAIM APPENDIX

54. A conditional order transaction network that matches or compares buy and sell orders for a plurality of security instruments based upon conditions set forth within the order, including price represented as an algorithm with constraints thereon, the transaction network comprising:

a variable number of trader terminals for entering an order for a security instrument in a form of an algorithm with constraints thereon that represent a willingness to transact, where price of one security is a dependent variable of the algorithm within the constraints and dynamically changing price of another security is an independent variable thereof, the price as the dependent variable being continuously changeable responsive to changes in price of the independent variable, the algorithm representing a buy or sell order; and

at least one controller computer coupled to each of the variable number of trader terminals over a communications network and receiving as inputs,

a) each algorithm with its corresponding constraints, and

b) at least one external price feed depicting prices of various securities and contracts from external multiple exchanges which may be used as an independent variable of the algorithm or an input to a constraint variable, the controller computer comprising,

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

means for matching, in accordance with the constraints and the conditions, algorithmic buy/sell orders with algorithmic or non-algorithmic sell/buy orders through use of the external multiple data sources;

wherein the price, as represented in the form of the algorithm, includes an order quantity subject to another algorithm; and

wherein the price is a yield spread.