UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN T. HUGHES, JR., DANIEL F. MOORE, BRUCE E. FRIEDMAN, and TIMOTHY VINCENT

Appeal 2009-008484
Application 10/206,789
Technology Center

Decided: December 30, 2009

Before, MURRIEL E. CRAWFORD, HUBERT C. LORIN and JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

FISCHETTI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1-36. We have jurisdiction under 35 U.S.C. § 6(b). (2002). A telephonic Hearing was heard on December 8, 2009.

SUMMARY OF DECISION

We AFFIRM.

THE INVENTION

Appellants claim a system and method for electronic securities trading, and the processing and displaying of information relating to electronic securities trading. (Specification 1:8-9)

Claim 1, reproduced below, is representative of the subject matter on appeal.

1. An apparatus executing computer instructions for chronicling a portion of an electronic market comprises:

a computer system including

a processor;

a main memory coupled to the processor; and

persistent storage, associated with the computer system, the computer system executing:

instructions for recording a first activity relating to a security interest in an order book in the main memory of the computer system; and

instructions for recording the first activity in the persistent store.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Marks de Chabris	5,077,665	Dec. 31, 1991
Silverman	7,110,975 B2	Sept. 19, 2006

The following rejections are before us for review:

1. The Examiner rejected claims 1-36 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

2. The Examiner rejected claims 1, 4, 9-13, 16, 21-25, 28, and 33-36 under 35 U.S.C. § 103(a) as being unpatentable over Marks de Chabris in view of Silverman.

3. The Examiner rejected claims 2, 3, 5-8, 14, 15, 17-20, 26, 27, and 29-32 under 35 U.S.C. § 103(a) as being unpatentable over Marks de Chabris in view of Silverman, and further in view of Official Notice.

ISSUE

Have Appellants shown that the Examiner erred in rejecting claims 1-36 on appeal as being unpatentable under 35 U.S.C. § 101 as containing patent ineligible subject matter?

Have Appellants shown that the Examiner erred in rejecting claims 1, 4, 9-13, 16, 21-25, 28, and 33-36 under 35 U.S.C. § 103(a) as being unpatentable over Marks de Chabris in view of Silverman on the grounds that a person with ordinary skill in the art would understand that an order book residing in main memory would result in faster updates and a more real time view of the actual trading world?

PRINCIPLES OF LAW

"Section 103 forbids issuance of a patent when '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.'" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 550 U.S. at 407 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

> When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR, 550 U.S. at 421.

"Common sense teaches . . . that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary

skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 420.

The test to determine whether a claimed process recites patentable subject matter under § 101 is whether: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing. *In re Bilski*, 545 F.3d 943, 961-62 (Fed. Cir. 2008) (en banc).

FINDINGS OF FACT

We find the following facts by a preponderance of the evidence:

1. The Specification discloses the persistent store in the context of:

> [T]he server storage 56 may be hard disk drive, a tape drive, an optical drive, a redundant array of independent disks (RAID), a random access memory (RAM), or a read-only memory (ROM), for example, or other similar sequential access storage device or devices that provides a persistent store of the recorded information.

(Specification 3:12-15)

2. The Specification defines the main memory as random access memory or cache memory. (Specification 4:1-2).

3. The Specification describes that the order book resides in main memory and is the location where security trading interests are stored. (Specification 3:31).

4. The Specification discloses:

> To provide disaster recovery, the order file builder process 70 builds and maintains the order file 72 by retrieving the activities stored in the order activity log file 22. In some implementations, the order file 72 is stored on the

> server storage 56 …. While the order file builder process 70 stores activities related to updating the order book 14, activities not needed for reconstructing the order book 14, such as executed or canceling orders, are filtered from the material stored in the order file 72. By storing these activities, the order file 72 provides the current status of the security interests residing in the order book 14 to provide fast recovery after in the event of a malfunction of the securities processor 12 or reassigning one or more securities to another security processor.

(Specification 10: 11-21)

5. The Examiner found that:

> Marks de Chabris et al. teaches a computer system with processor (Pentium III) with storage (database server 32) capability for order matching. The Examiner points out that Pentium III processor would contain cache memory (however, claim 1 does not call for any type of specific memory or storage).
>
> instructions for recording a first activity relating to a security interest in an order book in the main memory of the computer system; and
>
> > an ability to process (calculate) outstanding, partially completed orders (Fig. 4B, ref. 120), which would indicate a record process in RAM or cache….

(Answer 9).

6. The Examiner found:

> Silverman et al., [is] in the same field of endeavor of electronic matching systems, does disclose writing information to a database that is an "order book"...
>
> > "...directed messages are used to update the local entry data base or order book at the

> local keystations involved in the transaction so as to indicate what has happened to the offer or bid at that particular keystation made in the connection with the matching transaction." (col. 3, lines 66-68 and col. 4, lines 1-2).
>
> Silverman et al., therefore, provides that information is written to a database or order book. Therefore, it would have been obvious to one skilled in the art at the time of invention, motivated by Silverman, et al., to write information to a database or order book, and that an order book keeps important transaction information related to securities and, for example, such information could be critical in tracking data such as that of partially filled orders.

(Answer 11).

7. Silverman discloses that when the trade is executed, all databases and trader screens are updated as to quantities traded and the quantities remaining. (Silverman, col. 5, ll. 38-40).

8. Silverman discloses:

> In order to get the book initially at the keystation, it is requested from the central system **20** during an initialization sequence. Thus, the first thing that a keystation **24** at a client site **26** does when it connects the network **22** and, thereby, through to the central system **20**, is to request a download of all the currently active books. The host **20** then preferably sends a snapshot of each book and, from then on, the central system **20** will continue to send out updates on either a periodic basis or immediately after each change to indicate that the various items in the book have changed.

(Silverman, col. 10, ll. 15-25).

9. Marks de Chabris discloses:

> The transaction supervisor server **36** of order manager **16** monitors the state of orders which are sent from transaction destinations **12** through transaction order interface **18** to database server **32** in steps **118** and **120**. At step **118**, transaction supervisor server **36** queries database server **32** for messages relating to completed transactions, partial fills, rejections and accepted order messages. At step **120**, transaction supervisor server **36** recalculates outstanding orders, partially completed orders and completed orders and sends the updated results to database server **32**. Other information such as whether various exchange systems are functioning properly and whether communication links are active can also be monitored and used by system **10** to efficiently process orders with available transaction destinations **12**.

(Marks de Chabris, col. 6, l. 66 - col. 7, l. 12).

10. The Specification describes the advantages of maintaining the order book on main memory in the context of:

> [S]ince the order book 14 resides in random access memory 16 such as main memory and in some implementations is accessed only by the matching process. In main memory information may be quickly stored on the order book as compared, for example, to order books residing in a magnetic medium (e.g., diskette, hard disk, etc.) which typically have much longer access times for storing and retrieving orders.

(Specification 10: 22-26)

11. It is our understanding that file back up is an old and well known procedure and it is typically done by storing backed up data onto a storage medium to which the data is written by a mechanical mechanism, e.g., hard disk.

12. The Specification describes that one feature of using a persistent memory is to use it to provide disaster recovery. (Specification 10:11).

ANALYSIS

We affirm the rejections of claims 1-36 made under 35 U.S.C. § 103(a); and reverse the rejection made under 35 U.S.C. § 101.

Claims 1-36 rejected under 35 U.S.C. § 101

The Examiner maintains that claims 1-36 contain patent ineligible subject matter because they fail to produce useful concrete and tangible results. (Answer 3). However, each of the independent claims on appeal recites devices, e.g., a computer system, a processor, a main memory coupled to the processor, and a persistent storage, which tie the claims to a particular machine or apparatus, and thus qualify the claims as patent eligible subject matter.

Therefore, we will not sustain the rejection of claims 1-36 under 35 U.S.C. § 101.

Claims 1, 4, 9-13, 16, 21-25, 28, and 33-36 rejected under 35 U.S.C. §103(a)

Independent claims 1, 13 and 25

Initially, we note that the Appellants argue these claims together as a group. Correspondingly, we select representative claim 1 to decide the appeal of these claims, with the remaining claims standing or falling with claim 1.

> There is no reason to suggest therefore, that Chabris possessed or that one skilled in the art would understand Chabris to suggest providing an

> order book for a security interest in main memory, as opposed to the conventional technique of Silverman.

(Appeal Br. 12)

The Examiner however found that Marks de Chabris discloses:

> a computer system with processor (Pentium III) with storage (database server 32) capability for order matching….[and] instructions for recording a first activity relating to a security interest in an order book in the main memory of the computer system; and an ability to process (calculate) outstanding, partially completed orders (Fig. 4B, ref. 120), which would indicate a record process in RAM or cache….

(FF 5).

Appellants do not contest these findings. What Appellants contest is that Marks de Chabris does not disclose an order book in the main memory of the computer in Marks de Chabris.

Appellants' Specification describes an order book that resides in main memory and is the location where security trading interests are stored (FF 3). Similarly, Marks de Chabris discloses that the "transaction supervisor server **36** recalculates outstanding orders, partially completed orders and completed orders and sends the updated results to database server **32**." (FF 9). Thus, we find that the database server 32 in Marks de Chabris, to the extent described by Appellants' Specification and so claimed, serves as an order book because it stores the updated outstanding orders, partially completed orders and completed orders which are sent to it by the transaction server 36.

Appellant concedes that Marks de Chabris most likely possesses main memory in the computer. (Appeal Br. 12). Thus, the claim limitation of a main memory in Marks de Chabris is met. The question then is whether a

person with ordinary skill in the art would know to locate the order book in the main memory as opposed to somewhere else, e.g., a persistent store. We find that it would be obvious to locate the order book in the main memory of Marks de Chabris for the following reasons.

First, Appellants' Specification describes an advantage of using the main memory for the order book is that information may be quickly stored on the order book as compared, for example, to order books residing in a magnetic medium (e.g., diskette, hard disk, etc.) which have much longer access times for storing and retrieving orders (FF 10). The Specification describes that one feature of using a persistent memory is to use it to provide disaster recovery. (FF 12). It is our understanding that file back up is typically done on a fixed storage medium to which data is written by a mechanical mechanism, e.g, a hard disk. (FF 11). Thus, a person with ordinary skill in the art would know to use a persistent memory for file back, and not to transact real time operations given such limitations. This is because the Appellants' system is a solution to a problem where there are only a finite number of identified, predictable solutions exist, namely, using a faster system to book transactions as opposed to one which is slower, and thus success is likely the product not of innovation but of ordinary skill and common sense. *See KSR*, 550 U.S. at 421.

Second, the Examiner relied on Silverman for the teaching of writing transaction information into a database or order book. (FF 6). Silverman additionally discloses that: 1) when the trade is executed, all databases and trader screens are updated as to quantities traded and the quantities remaining (FF 7); and 2) the host 20 sends a snapshot of each book to each key station and, from then on, the central system 20 will continue to send out

updates on either a periodic basis or immediately after each change to indicate that the various items in the book have changed (FF 8). We find by inference that if a snapshot of the order book is made by the central system 20 in Silverman, then it follows that the order book would need to be resident in a memory which could deliver immediate updates, which according to Appellants' Specification (FF 10), would not be from a slower persistent store, but rather from the faster main memory.

Thus, a person with ordinary skill in the art would look to Silverman, and with the goal of keeping updates immediate, would place the order book in Marks de Chabris in the main memory thereby insuring faster updates. *See KSR*, 550 U.S. at 418 (In making the obviousness determination one "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.").

Claims 4, 16, and 28

Initially, we note that the Appellants argue these claims together as a group. Correspondingly, we select representative claim 4 to decide the appeal of these claims, with the remaining claims standing or falling with claim 4.

Claim 4 recites in pertinent part "*the first record process and the second record process record the first activity prior to recording a second activity.*" (Emphasis added).

As found *supra*, the processes operated at the main memory are speedier than those at the persistent memory. Thus, it is matter of common sense to effect processing at the speedier of the two places, in the manner set forth in claim 4. *See KSR*, 550 U.S. at 421.

Claims 9, 21, and 33

Initially, we note that the Appellants argue these claims together as a group. Correspondingly, we select representative claim 9 to decide the appeal of these claims, with the remaining claims standing or falling with claim 9.

Claim 9 recites in pertinent part "*the first activity includes matching a security transaction against a portion of the security interest*." (Emphasis added). Appellants admit the matching feature and only distinguish this claim based on the argument that the main memory does not include the order book, which we found unpersuasive.

Claims 11, 23, and 35

Initially, we note that the Appellants argue these claims together as a group. Correspondingly, we select representative claim 11 to decide the appeal of these claims, with the remaining claims standing or falling with claim 11.

Claim 11 recites in pertinent part "*the persistent store is used to rebuild the order book*." (Emphasis added).

As found *supra*, we find that file back up or file rebuilding is an old and well known procedure, and it is typically done by storing backed up data onto a persistent storage medium (FF 11). Therefore, we do not find distinguishable the step of using the persistent store to rebuild the order book on the main memory, as modified by Silverman, to recover lost data either.

Claims 12, 24, and 36

Initially, we note that the Appellants argue these claims together as a group. Correspondingly, we select representative claim 12 to decide the appeal of these claims, with the remaining claims standing or falling with Claim 12. Claim 12 recites in pertinent part "*the state of the order book represents the existing market at the time of the first activity*." (Emphasis added).

Appellants argue that the "… the order book, in the persistent store of the combined references, reflects the market at the time of the so called first activity and not, as called for by claim 12, the state of the order book (in the claimed main memory) representing the existing market at the time of the first activity." (Appeal Br. 16). We disagree with Appellants. As found *supra*, the combination would produce a system wherein the order book resides in main memory, and thus a snapshot of the main memory of the modified Marks de Chabris would be a real time view of the market.

Claims 2-3, 6-8; 14, 15, 16, 18-20; 26, 27 and 30-32

Appellants' arguments against the rejections of each of these claims is based on the perceived deficiencies of Marks de Chabris and Silverman insofar as there is no explicit teaching of an order book in main memory. (Appeal Br. 17). Inasmuch as Appellants raise the same issues with respect to each of these claims, we discuss them together.

Appellants reassert their previous argument for these claims stating: "Appellant contends that no combination of Chabris with Silverman would provide the feature of: 'an order book in the main memory of the computer system," as called for by claim 1.'" (Appeal Br. 17). We disagree with Appellants for the reasons set forth *supra* regarding the rejection of claim 1 and sustain the rejection of claims 2-3, 6-8; 14, 15, 16, 18-20; 26, 27 and 30-

32.

CONCLUSIONS OF LAW

1. We conclude the Appellants have shown that the Examiner erred in rejecting claims 1-36 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

2. We conclude the Appellants have not shown that the Examiner erred in rejecting claims 1, 4, 9-13, 16, 21-25, 28, and 33-36 under 35 U.S.C. § 103(a) as being unpatentable over Marks de Chabris in view of Silverman.

3. We conclude the Appellants have not shown that the Examiner erred in rejecting claims 2, 3, 5-8, 14, 15, 17-20, 26, 27, 29-32 under 35 U.S.C. § 103(a) as being unpatentable over Marks de Chabris in view of Silverman, and in further view of Official Notice.

DECISION

The decision of the Examiner to reject claims 1-36 is AFFIRMED.

AFFIRMED

mls

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