

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte I-LUNG KAO and SHAW-BEN SHEPHERD SHI

Appeal 2007-2247
Application 09/442,694¹
Technology Center 2100

Decided: March 6, 2008

Before HOWARD B. BLANKENSHIP, ROBERT E. NAPPI, and
SCOTT R. BOALICK, *Administrative Patent Judges*.

BOALICK, *Administrative Patent Judge*.

¹ Application filed November 18, 1999. The real party in interest is International Business Machines Corporation.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1-38, all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

STATEMENT OF THE CASE

Appellants' invention relates to a method of providing security for target passwords in a centralized database of a global sign on system.

Claim 1 is exemplary:

1. A method in a data processing system for providing security to target passwords in a global sign on system centralized database, comprising the steps of:

receiving a target password;

encrypting said target password in a user selected encryption manner to create an encrypted password; and

storing said encrypted password and an indication of encryption manner chosen.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

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|---------|--------------|---------------|
| Seymour | US 5,226,172 | Jul. 6, 1993 |
| Kung | US 5,241,594 | Aug. 31, 1993 |
| Jacobs | US 5,611,048 | Mar. 11, 1997 |

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Birnbaum US 5,797,128 Aug. 18, 1998

Leppek US 5,933,501 Aug. 3, 1999

Microsoft Corporation, *The Windows Interface, An Application Design Guide*, Microsoft Press, 3, 75-7, 108-11 (1992) (hereinafter "Microsoft").

Manber, Udi, *A Simple Scheme to Make Passwords Based on One-Way Functions Much Harder to Crack*, Univ. of Arizona, November 1994, *Computers and Security* 15(2) 171-6, (1996) (hereinafter "Manber").

Claims 1-3, 13-15, and 25-27 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Leppek, and Birnbaum.

Claims 4, 16, and 28 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Leppek, Birnbaum, and Microsoft.

Claims 5-7, 17-19, and 29-31 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Leppek, Birnbaum, Microsoft, and Manber.

Claims 8-9, 20-21, and 32-33 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Leppek, Birnbaum, Jacobs, and Manber.

Claims 10 and 22 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung and Seymour.

Claims 11-12 and 23-24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Seymour, and Manber.

Claims 34-36 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Birnbaum, and Manber.

Claim 37 stands rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Birnbaum, Manber, Seymour, and Leppek.

Claim 38 stands rejected under 35 U.S.C. § 103(a) as being obvious over Kung, Leppek, and Birnbaum.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Briefs and the Answer for their respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 1.192(c)(7) (2004).²

ISSUE

The issue is whether Appellants have shown that the Examiner erred in rejecting the claims under 35 U.S.C. § 103(a). That is, given the teachings of the prior art, have Appellants shown that the differences between the claims and the prior art are sufficient to render the claimed subject matter unobvious to a person skilled in the art at the time the invention was made?

PRINCIPLES OF LAW

All timely filed evidence and properly presented arguments are considered by the Board in resolving an obviousness issue on appeal. *See In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

² We cite to the rule that was in effect at the time the instant Appeal Brief was filed on August 24, 2004. The present rule is found at 37 C.F.R. § 41.37(c)(1)(vii)(2007). Except as will be noted in this opinion, Appellants have not presented any substantive arguments directed separately to the patentability of the dependent claims or related claims in each group. In the absence of a separate argument with respect to those claims, they stand or fall with the representative independent claim. *In re McDaniel*, 293 F.3d 1379, 1383 (Fed. Cir. 2002); *see also* 37 C.F.R. § 1.192(c)(7) (2004).

In the examination of a patent application, the Examiner bears the initial burden of showing a *prima facie* case of unpatentability. *Id.* When that burden is met, the burden then shifts to the applicant to rebut. *Id.*; *see also In re Harris*, 409 F.3d 1339, 1343-44 (Fed. Cir. 2005) (finding rebuttal evidence unpersuasive). If the applicant produces rebuttal evidence of adequate weight, the *prima facie* case of unpatentability is dissipated. *In re Piasecki*, 745 F.2d at 1472. Thereafter, patentability is determined in view of the entire record. *Id.* However, on appeal to the Board it is an appellant's burden to establish that the Examiner did not sustain the necessary burden and to show that the Examiner erred. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [for obviousness] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

"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.*, 127 S. Ct. 1727, 1734 (2007). In *KSR*, the Supreme Court reaffirmed that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 1739. The Court explained:

When a work is available in one field of endeavor,
design incentives and other market forces can
prompt variations of it, either in the same field or a

different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if 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 actual application is beyond his or her skill.

Id. at 1740. The Court also explained that:

[o]ften, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

Id. at 1740-41. The Court noted that "[t]o facilitate review, this analysis should be made explicit." *Id.* at 1741 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness")). However, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*

The Court noted that "[i]n many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the

case that market demand, rather than scientific literature, will drive design trends." *KSR*, 127 S. Ct. at 1741. "Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 1742. The Court also noted that "[c]ommon 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.* "A person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.*

During examination of a patent application, a claim is given its broadest reasonable construction consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404-05 (CCPA 1969). "[T]he words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1313.

ANALYSIS

Appellants contend that the Examiner erred in rejecting claims 1-38. Reviewing the record, we do not agree that the Examiner erred in rejecting claims 1-7, 13-19, 25-31, and 34-38. In particular, we find that the Appellants have not shown that the Examiner failed to make a prima facie showing of obviousness with respect to these claims. Appellants failed to

meet the burden of overcoming that prima facie showing. However, we agree with Appellants that the Examiner erred in rejecting claims 8-12, 20-24, and 32-33.

Claims 1-3, 13-15, and 25-27

Appellants have argued claims 1-3, 13-15, and 25-27 together as a group. (App. Br. 5-7.) Thus, in accordance with 37 C.F.R. § 1.192(c)(7) (2004), we select claim 1 as representative.

Appellants argue that the combined references do not teach the claimed invention because none of the references teach "storing . . . an indication of encryption manner chosen," as claimed (App. Br. 6). Appellants also argue that Birnbaum is not analogous art because it is not reasonably pertinent to the problem at hand (App. Br. 5-6; Reply Br. 2-3). In addition, Appellants argue that there is no motivation to combine the references because the coding "footprint" reduction techniques taught by Leppek would not be realized when using short messages such as passwords and because Birnbaum is not directed to encryption of passwords or even to encryption in general (App. Br. 6-7; Reply Br. 3). We do not agree.

Kung teaches a system for authenticating users in a distributed computing system that uses a file stored in a database that includes each user ID and encrypted passwords for each computer of the system. (Ans. 6; Kung col. 2, ll. 13-45.) Leppek teaches an encryption scheme that combines selected encryption operators stored in a database into a compound sequence of cascaded encryption operators. (Ans. 7; Leppek col. 1, l. 64 to col. 2, l. 13.) The technique of Leppek results in an encrypted output with no readily discernable encryption footprint. (Leppek, col. 2, ll. 56-60.) A

decryption key that is the complement of the encrypting sequence is used to recover the encrypted data. (Leppek col. 3, ll. 3-10.)

The Examiner correctly found that Birnbaum teaches storing of a policy, such as a password policy, in a database and relied on this teaching to read on the claimed limitation of "storing . . . an indication of encryption manner chosen." (Ans. 7, 24; Birnbaum col. 2, ll. 45-47, col. 4, ll. 43-46, 50-53, col. 4, l. 61 to col. 5, l. 11, col. 5, ll. 19-25.) A person of ordinary skill in the art would have recognized that Birnbaum would improve Kung and Leppek in the same way using the same technique. In addition, using the technique of Birnbaum with Kung and Leppek to store an indication of the encryption method would not have been beyond the level of ordinary skill. Moreover, it would have been common sense for one of ordinary skill in the art to have stored an indication of the manner of encryption, such as the decryption key taught by Leppek, in order to properly decrypt the encrypted passwords, such as the encrypted passwords of Kung.

Although Appellants admit that Leppek is silent as to the length of the data sequences encrypted (App. Br. 7), Appellants nevertheless argue that the techniques of Leppek are not suitable for short data sequences such as passwords (App. Br. 7; Reply Br. 3). Appellants present no evidence to support their argument, and we do not find it persuasive. Instead, we agree with the Examiner that Leppek teaches that the "footprint" is a function of the encryption algorithm used rather than the length of the data sequence encrypted. (Ans. 25, Leppek col. 1, ll. 56-58.)

Therefore, we agree with the Examiner that a person having ordinary skill in the art would have considered the password policy automation

teachings of Birnbaum to be relevant (Ans. 22-23) and that Kung, Leppek, and Birnbaum are properly combined (Ans. 7-8, 24-25.)

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 103(a). Claims 2-3, 13-15, and 25-27 were argued as a group with claim 1, and fall together with claim 1.

Claims 4, 16, and 28

Appellants have argued claims 4, 16, and 28 together as a group. (App. Br. 8.) Thus, in accordance with 37 C.F.R. § 1.192(c)(7) (2004), we select claim 4 as representative.

Appellants argue that Microsoft does not compensate for the deficiencies of Kung, Leppek and Birnbaum discussed with respect to claim 1. (App. Br. 8.) We reject this argument for the reasons discussed with respect to claim 1.

In addition, Appellants argue that Microsoft does not teach or suggest a menu that enables a user to select the manner of encryption. (App. Br. 8.) We do not agree. Instead, we agree with the Examiner that Microsoft teaches the use of a menu and that one of ordinary skill in the art would have applied the menu teachings of Microsoft to the combination of Kung, Leppek, and Birnbaum to enable user selection of the encryption manner using a menu. (Ans. 9-10, 26.)

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claim 4 under 35 U.S.C. § 103(a). Claims 16 and 28 were argued as a group with claim 4, and fall together with claim 4.

Claims 5-7, 17-19, and 29-31

Although Appellants nominally argue the rejection of dependent claims 5-7, 17-19, and 29-31 separately (App. Br. 9), the arguments presented do not point out with particularity or explain why the limitations of the dependent claims are separately patentable. Instead, Appellants summarily allege that these claims "are allowable for at least the same reasons as noted above with regard to claims 1, 13, and 25" and that "Manber does not make up for the deficiencies of the other references relied on, as described above." (App. Br. 9.) Because Appellants have not persuasively rebutted the Examiner's prima facie case of obviousness for dependent claims 5-7, 17-19, and 29-31 based on the teachings of the applied references, we will sustain the rejection of claims 5-7, 17-19, and 29-31 for the reasons discussed with respect to independent claim 1 and independent claims 13 and 25, which were grouped together with independent claim 1, from which claims 5-7, 17-19, and 29-31 depend.

Claims 8-9, 20-21, 32-33

Claim 8 is dependent upon claim 1 and further recites "retrieving all of said users target passwords that were encrypted using said first primary password; decrypting all of said users target passwords that were encrypted using said first primary password to produce unencrypted target passwords; encrypting said unencrypted target passwords using said second primary password to produce reencrypted target passwords; and storing said reencrypted target passwords." Claims 9, 20-21, and 32-33 recite similar limitations.

We agree with Appellants that neither Kung, Leppek, Birnbaum, Jacobs, nor Manber teach or suggest retrieving and decrypting all of a user's target passwords that were encrypted using a first password, re-encrypting these passwords using a second password, and storing the re-encrypted passwords, as claimed. (App. Br. 9-10.)

The Examiner relied on Jacobs to teach propagation of password updates. (Ans. 14.) Jacobs teaches a system for administering passwords on remote machines that includes a client that generates a password update message when a password is updated at the client, transmits the password update message to a gateway server that, using a terminal emulator program, then sends the password update message to a mainframe computer and determines whether the password was successfully changed. (Jacobs col. 2, ll. 10-33.) However, this teaching of remotely changing a user password does not teach or suggest the claimed steps of retrieving, decrypting, re-encrypting, and storing all of a user's target passwords.

Accordingly, we conclude that Appellants have shown that the Examiner erred in rejecting claims 8-9, 20-21, and 32-33 under 35 U.S.C. § 103(a).

Claims 10 and 22

Independent claim 10 recites a method "responsive to a determination that the encrypted form [of target information] is a second encrypted form." Independent claim 22 contains a similar limitation. Thus, the scope of both claims includes the system being responsive to a determination that target information is stored in a second encrypted form.

We agree with Appellants that neither Kung nor Seymour teach or suggest the system being responsive to a determination that target information is stored in a second encrypted form, as claimed. (App. Br. 11.) The Examiner found that Seymour teaches this limitation. (Ans. 16.) We do not agree with this finding.

Seymour teaches that various password files are searched in a specified order when a user attempts to access the system. (Col 3, l. 66 to col. 7, l. 6.) The Examiner found that different password files will have different encryption forms because they "will have different hash values and potentially different hash functions." (Ans. 28.) We do not find that Seymour teaches or fairly suggests different encryption forms being used for different password files. In addition, there is no evidence before us to show that this limitation is a predictable variation of the prior art. Nor is there evidence before us to show that this limitation would be common sense or a creative step that a person of ordinary skill in the art would employ.

Accordingly, we conclude that Appellants have shown that the Examiner erred in rejecting claims 10 and 22 under 35 U.S.C. § 103(a).

Claims 11-12 and 23-24

Appellants argue that the Examiner erred in rejecting dependent claims 11-12 and 23-24 for the same reasons discussed with respect to independent claims 10 and 22, from which they depend. (App. Br. 11.) We agree. Therefore, we will not sustain the rejection of claims 11-12 and 23-24 for the reasons discussed with respect to independent claim 10 and independent claim 22, which was argued together with claim 10.

Claims 34-36

Appellants have argued claims 34-36 together as a group. (App. Br. 12-13.) Thus, in accordance with 37 C.F.R. § 1.192(c)(7) (2004), we select claim 34 as representative.

Similarly to claim 1, Appellants argue that Birnbaum is not analogous art and that there is no motivation to combine the references. (App. Br. 12-13.) We reject these arguments for the reasons discussed with respect to claim 1.

In addition, Appellants argue that the combined references do not teach or suggest all of the features of claim 34. (App. Br. 13.) In particular, Appellants argue that "Birnbaum does not teach anything about passwords" and "Seymour does not teach multiple encryption methods for passwords." (App. Br. 13.) We do not agree.

With respect to encryption forms, we note that claim 34 merely requires that the server send encrypted target information to the client "in a form dependent upon user selection." Nothing in the claim language requires a choice to be made from among more than one encryption form. The claim language is broad enough to cover implicit selection of an encryption form used by a particular system that is selected by a user. In other words, the default encryption form used by a system such as that taught by Kung reads on the recited encryption "form dependent upon user selection."

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claim 34 under 35 U.S.C. § 103(a). Claims 35-36 were argued as a group with claim 35, and fall together with claim 34.

Claim 37

Although Appellants nominally argue the rejection of dependent claim 37 separately (App. Br. 13), the arguments presented do not point out with particularity or explain why the limitations of claim 37 are separately patentable. Instead, Appellants summarily allege that none of the applied references, alone or in combination, teach or suggest all of the features of independent claim 34, from which claim 37 depends. (App. Br. 13.) Because Appellants have not persuasively rebutted the Examiner's prima facie case of obviousness for dependent claim 37 based on the teachings of the applied references, we will sustain the rejection of claim 37 for the reasons discussed with respect to independent claim 34, from which claim 37 depends.

Claim 38

Although Appellants nominally argue the rejection of dependent claim 38 separately (App. Br. 14), the arguments presented do not point out with particularity or explain why the limitations of the dependent claims are separately patentable. Instead, Appellants summarily allege that "the same responses apply to this dependent claim as were argued above for the independent claim." (App. Br. 14.) Because Appellants have not persuasively rebutted the Examiner's prima facie case of obviousness for dependent claim 38 based on the teachings of the applied references, we will sustain the rejection of claim 38 for the reasons discussed with respect to independent claim 1, from which claim 38 depends.

NEW GROUND OF REJECTION UNDER 37 C.F.R. § 41.50(b)

We make the following new ground of rejection using our authority under 37 C.F.R. § 41.50(b).

35 U.S.C. § 101

Claims 13-24 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claim 13 recites a "computer program product in computer readable media." Claim 22 recites a "computer program product in a data processing system." A data processing system is broad enough to encompass computer readable media. The Specification teaches that "[e]xamples of computer readable media include . . . transmission-type media such as digital and analog communications links." (Spec. 23:20-23.) Therefore, computer readable media includes electromagnetic radiation, i.e., carrier waves or signals. A carrier wave or signal is not statutory subject matter because it does not fall within any of the four categories of statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1357 (Fed. Cir. 2007).

We thus reject claims 13 and 22 as embracing non-statutory subject matter. Claims 14-21 and 23-24, each of which depends from one of claims 13 and 22, are rejected under 35 U.S.C. § 101 for the same reasons discussed with respect to claims 13 and 22.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b).

37 C.F.R. § 41.50(b) provides that, "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellants, *WITHIN TWO MONTHS FROM THE DATE OF THE DECISION*, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 C.F.R. § 1.197 (b)) as to the rejected claims:

- (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner ...
- (2) Request rehearing. Request that the proceeding be reheard under 37 C.F.R. § 41.52 by the Board upon the same record ...

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that:

- (1) Appellants have not shown that the Examiner erred in rejecting claims 1-7, 13-19, 25-31, and 34-38 for obviousness under 35 U.S.C. § 103.
- (2) Appellants have shown that the Examiner erred in rejecting claims 8-12, 20-24, and 32-33 for obviousness under 35 U.S.C. § 103.
- (3) Claims 13-24 are unpatentable under 35 U.S.C. § 101 because they are directed to non-statutory subject matter.

DECISION

The rejection of claims 1-7, 13-19, 25-31, and 34-38 for obviousness under 35 U.S.C. § 103 is affirmed.

The rejection of claims 8-12, 20-24, and 32-33 for obviousness under 35 U.S.C. § 103 is reversed.

Claims 13-24 are rejected as being directed to non-statutory subject matter under 35 U.S.C. § 101.

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A new ground of rejection has been entered under 37 C.F.R.
§ 41.50(b).

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

AFFIRMED-IN-PART

37 C.F.R. § 41.50(b)

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